

For Reference

NOT TO BE TAKEN FROM THIS ROOM

For Reference

NOT TO BE TAKEN FROM THIS ROOM

Ex LIBRIS
UNIVERSITATIS
ALBERTAENSIS





Digitized by the Internet Archive
in 2019 with funding from
University of Alberta Libraries

<https://archive.org/details/theorypracticego00jean>

thesis.
960 (F)
4 11

THEORY AND PRACTICE
GOVERNING THE TIME OF SCHOOL ENTRANCE

A Thesis
Presented to
the Faculty of Graduate Studies
University of Alberta

In Partial Fulfillment
of the Requirements for the Degree
Master of Education

by
Jean Downie Dey
September, 1960

UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE STUDIES

The undersigned certify that they have read and recommend to the
Faculty of Graduate Studies for acceptance, a thesis entitled:

THEORY AND PRACTICE
GOVERNING THE TIME OF SCHOOL ENTRANCE

submitted by JEAN DOWNIE DEY in partial fulfillment of the
requirements for the degree of MASTER OF EDUCATION.

ABSTRACT

A review and analysis of the literature pertaining to current policies of admitting children to the first grade and of the factors affecting readiness for learning was undertaken in an attempt to discover if there was an optimal age for the commencement of formal instruction.

In the English-speaking countries, there are many variations in entrance age policies which are based on tradition and administrative convenience rather than on the results of research and experimentation. Each country makes provision for the individual differences among the children entering its schools for the first time either by adjusting the instructional program and materials or by establishing special admission policies.

Since the factors involved in readiness for learning are intermingled and interdependent, it is impossible to state absolutely the best chronological or mental age at which all children are ready to profit from formal instruction. Educators, with perhaps the exception of some in Scotland, generally accept the experimental evidence that the approximate mental age of six years is best suited to the traditional program of beginning reading but that a composite readiness more nearly assures success with formal instruction. This general readiness is most effectively fostered by a period of orientation in the school situation and by the adjustment to individual differences in the program of the first grade.

The importance of an early recognition of the differences in the

attainment of readiness makes early admittance to school desirable. Therefore it becomes necessary to set a minimum age at which children can profit from the experiences of a school environment. This age will depend upon the place the school occupies in transmitting the culture of its society. If its function is thought to be the development of academic achievement as opposed to the provision of a variety of developmental opportunities beyond those associated with the home, the entrance age may have to be relatively high.

Other administrative problems which arise include the selection of an adequate testing program, the organization of a flexible instruction program to meet individual differences, the selection of suitable teachers, methods and materials and the establishment of a public relations program to interpret school policy.

The recommendations for providing some solutions to these problems are based on conclusions reached by reviewing related literature and are, therefore, theoretical in nature. Experimentation over a period of at least four years would be necessary to assess their validity.

TABLE OF CONTENTS

CHAPTER	PAGE
I. THE PROBLEM	1
The Purpose of the Study	1
The Need for the Study	1
Procedure	4
II. FACTORS AFFECTING READINESS FOR LEARNING	6
Developmental Status	6
Pre-school Training	35
The Quality of Educational Experiences in School	45
III. PRESENT PRACTICES IN THE ADMISSION OF CHILDREN TO SCHOOL . .	53
IV. THE EFFECT OF ENTRANCE AGE ON ACADEMIC ACHIEVEMENT AND PROGRESS	70
The New Zealand Study	70
The Quebec Study	82
V. THE EFFECT OF THE SCHOOL PROGRAM ON READINESS FOR READING . .	93
VI. THE EFFECT OF EARLY FORMAL INSTRUCTION ON READING READINESS AND ACHIEVEMENT	102
VII. CONCLUSIONS AND PROBLEMS EMERGING FROM THE EVIDENCE RELATING TO THE THEORY AND PRACTICE GOVERNING SCHOOL ENTRANCE	122
VIII. RECOMMENDATIONS	128
BIBLIOGRAPHY	138

LIST OF TABLES

TABLE	PAGE
I. Frequency of Physical Defects and Diseases in a Group of 1,000 Children Who Were Failing in School Subjects and 500 Who Were Not (Eames)	10
II. Number of Children of each Mental Age and the Percentage Making Average or Better Progress in Reading (Dean)	22
III. Reading Progress of Twenty Children Through the Primary Grades Showing Estimated Teacher Minutes Per Year Given to Each Child (Boney and Agnew)	27 28
IV. The Means on Four Tests and the Significance of the Differences Between Kindergarteners and Non- Kindergarteners Equated on I.Q. and M.A. (Fast)	41
V. Distribution of Children According to Age at Entrance (New Zealand Study)	72 73
VI. Median Attainment Ages of Groups I to IV (New Zealand Study)	75
VII. Differences in Attainment of Early and Late Entrants (New Zealand Study)	77
VIII. Distribution of the Children of the Four Groups Shown in Percentages (New Zealand Study)	79
IX. Relation of Acceleration and the Age of Admission For Each Year of the Survey Expressed in Percentages (Quebec Study)	83

TABLE

PAGE

X.	Percentage of Retarded Progress in Relation to the Age of Admission For Each Year of the Survey (Quebec Study)	84
XI.	Distribution of the Beginners Aged Seven and Over in 1941 According to the Reasons For Not Beginning School Earlier Expressed in Percentages (Quebec Study) . .	85
XII.	Percentage of all Pupils of Grade I Enrolled in That Grade for the Second and Third Time (Quebec Study)	86
XIII.	Distribution of the Repeaters in Grade I According to the Age of Admission To School and the Causes of Failure Expressed in Percentages (Quebec Study)	87
XIV.	Distribution of the Pupils of Grade VI Who Have Repeated, According to the Grades Repeated and the Age of Admission Expressed in Percentages (Quebec Study)	88
XV.	Average Number of Years Taken by the Pupils in a Grade to Complete this Grade, Distributed according to the Age When First Admitted (Quebec Study)	89
XVI.	Percentage of Pupils Who Failed to Achieve Reading Grades of 1.50, 1.75 and 1.95 According to Mental Age (Gates)	95
XVII.	New York Pupils Taught with Specially Prepared Materials Who Failed to Achieve Reading Grades of 1.50, 1.75 and 1.95, Distributed According to Mental Age (Gates)	96

TABLE

PAGE

XVIII.	Urban Pupils in a Superior Public School Taught Without a Large Amount of Specially Prepared Materials Who Failed to Achieve Reading Grades of 1.50, 1.75 and 1.95, Distributed According to Mental Age (Gates)	97 98
XIX.	Pupils in Metropolitan Schools Taught With Inferior Materials Who Failed to Achieve Reading Grades of 1.50, 1.75 and 1.95, Distributed According to Mental Age (Gates)	99
XX.	Comparison of the Scores of Scottish and American Children Aged Six Plus on the Metropolitan Readiness Test (Taylor)	103
XXI.	Comparison of the Mean Chronological Age With the Mean Reading Age Obtained on the Metropolitan Test, Primary I Battery, Form A, Scottish Group (Taylor)	108

LIST OF FIGURES

FIGURE		PAGE
1.	Median Attainment Ages of Early and Late Entrants (New Zealand Study)	76
2.	Percentages of Early and Late Entrants in Infants, Standard I, Standard II and Standard III After Three Years and Two Terms at School	80
3.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Total Score</u> (Taylor)	104
4.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Perception - Similarities</u> (Taylor)	105
5.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Perception - Copying</u> (Taylor)	105
6.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Vocabulary</u> (Taylor)	106
7.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Sentences</u> , (Taylor)	106
8.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Information</u> (Taylor)	107
9.	Comparison of the Scottish and American Scores, Metropolitan Readiness Test, <u>Number</u> (Taylor)	107

CHAPTER I

THE PROBLEM

I. THE PURPOSE OF THE STUDY

The educational significance of the early years of childhood was first noted by Comenius over three hundred years ago and today is generally recognized. The question of the best time to admit children to the first grade of the school system and to introduce formal instruction has attracted international attention and extensive study. Since the complex process of learning is further complicated by the variations in environment, instructional procedures and cultural expectations, it would seem judicious to make a comprehensive survey of the current theories and practices concerning the most satisfactory age for school entrance as a means of exploring all the known solutions to the problem. From this broad perspective it should be possible to profit from the experiences of other countries and to select those principles which are applicable to the situation.

The purpose of this study was to examine and analyze the literature pertaining to the problem in an attempt to discover the optimal age and conditions necessary for the beginning of formal instruction at the grade one level.

II. THE NEED FOR THE STUDY

Since 1920, a vast amount of professional literature has been

devoted to the question of readiness to begin formal instruction especially in the field of reading. This interest has been heightened by a parallel concern with child development and its influences on learning. The controversy over readiness has involved two main viewpoints. There may be a possibility of frustration and low achievement for the child who is forced into a learning situation before he can cope with the tasks involved. Conversely, a late introduction to the formal skills may be mere waste of time. Underlying both these opinions is the financial aspect of the problem. The amount of time a child spends in school and the special provisions which may have to be made for him during his attendance at school, represent a definite cash outlay of the taxpayer's money. Is the time a child spends in school reduced by delaying his entrance until he is ready and can proceed rapidly through the grades, or does an early start assure an early graduation? If the age of entry has any bearing on the immediate and subsequent progress in school, it is worthy of careful consideration.

There is great variety in the policies and practices controlling the admittance of children to school in the English-speaking countries of the world, and almost as many variations within the framework of the individual school systems especially in those on the North American continent. The mobility of the world population makes comparisons among countries inevitable and generates considerable emotion concerning the superiority of one policy over another. This situation often works hardship on the children who are caught up in the question. It is important that the extent of these differences in practice be estimated to

establish whether they have any appreciable effect on the effectiveness of the educational program.

In the last few years an intense interest in education has been shown by the general public. International academic competition and a resultant emphasis on scholastic achievement has led to a close scrutiny of educational philosophies and practices. The indifferent achievement of the superior and gifted students and the apparent need for remedial reading programs have occasioned grave concern on the part of educators and laymen alike. It may be that the age of school entrance and the time of commencement of formal instruction has a measurable effect on these problems. It would seem that at this time we must examine again the findings of related research and experimentation in the light of today's requirements, either to ratify the adequacy of present policies or to re-assess them and, if necessary, to draft more appropriate ones. The numerous inquiries concerning this aspect of education received by the Alberta Advisory Committee on Educational Research would indicate that it has high priority among current educational problems. It would appear that there is extensive concern over present policies and practices.

Although the volume of published experimental evidence dealing with the readiness concept and the optimal age for beginning formal instruction has been prodigious, there has been a limited number of attempts to summarize the findings as they might apply to Alberta education. It is suggested that such a study has significance in assisting school systems to establish entrance age policies which could

be based on the integration of proven theory and feasible practice rather than on tradition and considerations of economy.

III. PROCEDURE

Form letters were sent to universities, colleges and education departments in the major centres of England, Scotland, South Africa, Australia, New Zealand, the United States and Canada requesting information about related research, current entrance age policies and curriculum bulletins.

An extensive survey of the educational literature related to the topic and published since 1920, was made. This was limited, to a great degree, to the field of reading for two reasons. First, formal instruction in reading receives the major emphasis at the grade one level and, second, the largest percentage of research and experimentation has been conducted in this subject matter area. Because of its high involvement in the learning process, the literature on child development was included in the study as well.

Four studies were selected for detailed analysis and evaluation because they seemed to be particularly relevant to the main issues involved. The longitudinal studies conducted in New Zealand and Quebec reported the apparent effect of entrance age on subsequent achievement and progress. The study by Gates presented evidence which suggested the relative importance of mental age as a readiness factor. The Scottish study compared the effect of early formal instruction in reading with the effect of maturation, on readiness and reading achievement at the

grade one level.

This study has attempted to assemble the accumulated information pertaining to readiness for the commencement of formal instruction and to entrance age policies to clarify issues and to show developing patterns of thought on the subject. It also defines the administrative and instructional problems which appear to arise from the evidence and suggests recommendations which seem related to the creation of optimal conditions for entry into the first grade and the commencement of formal instruction.

Chapter II surveys and summarizes the results of experiments and the opinions of educators regarding the factors which govern readiness for learning and the effects of readiness on the learning process. The entrance age policies and practices of the English-speaking countries are discussed in Chapter III. The effect of entrance age on academic achievement and progress as reported by the New Zealand and the Quebec studies is included in Chapter IV. The necessary age for beginning reading and the effect of the school program on reading achievement is explored in Chapter V. Chapter VI presents and evaluates the evidence relating to the controversy over early formal training versus maturation as determining factors in readiness and achievement. A summary of basic principles and of the problems which arise from these principles comprises Chapter VII. Chapter VIII concludes with recommendations, based on the evidence, which suggest possible means of meeting the outlined problems connected with establishing an optimal age of entrance into school.

CHAPTER II

FACTORS INFLUENCING READINESS

Surveys of nonpromotion have shown uniformly that the failure rate is highest in the first grade. Clarke (1955) reports that in Alberta, of all the children between grade one and grade eight inclusive, 5.4 per cent failed, with the highest failure rate, 6.5 per cent in grade one. Heck (1929), Caswell (1933) and Yageman (1935) reported from 16 to 19 per cent failures in grade one. Hildreth (1936) placed the failure rate for grade one even higher with percentages of from 20 to 25. The inability of pupils to meet reading requirements was mentioned most frequently as the reason for nonpromotion. This may be interpreted to mean that many first grade entrants have difficulty in coping with the learning task which confronts them.

Factors which influence the child's readiness to profit from formal education can be classified into three major areas: (1) his developmental status, (2) his pre-school training, and (3) his educational experiences upon entry into grade one.

I. DEVELOPMENTAL STATUS

The developmental status of a child depends upon the degree of maturation of the total organism and is a composite of physical, emotional and intellectual characteristics. Most effective learning takes place when each of these is in a state of readiness.

General physical maturation, good health and the absence of

defects in vision, hearing and speech appear to play a part in the learning process. In discussing the various influences which affect child development, Breckinridge and Vincent (1958) have this to say about maturation:

Behavior is possible only because a child has a body with its bony framework, its muscular system, its vital organs, its nervous system. Only as these systems and organs develop and become increasingly mature in structure and function can higher and higher levels of behavior become possible. The relationship of maturation of the nervous system to learning is particularly close. Hidden deep in the nervous system itself, yet vital to the capacity to learn, is the growth and maturing of the nervous system.

There are also within the child powerful inner forces which preserve the balance of the total growth pattern which regulates the direction of the growth trend. These are the forces which produce the so-called "readiness" to learn and act.

In general, the evidence from studies indicates that until a child has the neural readiness to learn, training in any particular activity is useless and may even establish negative feelings toward the activity which will retard later learning.

When he is "ready" in the neural sense, he usually becomes psychologically ready and displays this fact by showing an interest in the activity for which he is ready. At this point, he will benefit greatly from practice and teaching in the activity. He will, in fact, be eager to learn and will often practice the newly developing skill assiduously. (1958, pp. 59, 60)

Harriman (1950) concurs with the point of view that there is a close relationship between the rate of physical maturation and the development of learning capacity and that attempts to force maturation are futile and even harmful.

Students of child development have discovered that, although children tend to grow to maturity in much the same order, they vary in their rate of growth which may be fast, slow or uneven,

Boyce (1953) says:

Just as every child has his own rate of growing heavier and taller, so he has his own rate of inner growth. Inner growing will take its own time and until children are organically capable, it is impossible to influence certain ways of acting, feeling and thinking or to teach them things like writing and reading.

Language may emerge before the first birthday or after the second. Those who are slow to talk are not by any means backward children but they are different. Their energy may have been concentrated elsewhere, perhaps in making themselves more agile in movement than other children of a similar age. We have no more right to press for more rapid growth than a child can manage in any direction than we have to prevent him from learning as fast as he wishes. . . .

Lack of knowledge (of individual differences) can only result in wasted efforts, harmful interference with the course of maturation, unjust discipline and tired, strained children. (1953, pp. 40, 41, 43)

Olson (1949) and his associates made intensive studies of school achievement in relation to growth in general. School progress, as measured by achievement tests, was compared with various aspects of growth progress such as height age, weight age, dental age, carpal age and mental age. It was found that achievement in any subject matter area was not as closely correlated with mental age or any other single growth age as it was with a composite of the growth ages or, as Olson and Hughes (1942) termed it, the organismic age. Examination of the data showed that organismic age can be made up of very different patterns of growth. Each child has his own unique pattern of growth and may seem immature when appraised by one growth age yet be relatively mature in another. A complete study of a child's organismic age may reveal that he is less mature than his mental age alone indicates. Olson (1949) says:

It is difficult for many persons to adjust themselves to the idea that they should pace the developing child instead of forcing him. . . . Instruction alone cannot make all children alike or bring them to the

same point in the reading process. To understand this fully, one must appreciate that children, even with the same experiences, grow at different rates and have different aptitudes for learning. The nature of the child's growth as a whole is an important determiner of this aptitude. (1949, p. 121 - 123)

It has been noted by reading specialists that more boys than girls suffer reading disabilities. Since boys tend to mature later than girls it has been assumed that physical maturation is a factor in readiness to begin reading. This assumption receives additional support from the fact that these differences exist mainly in the early years but tend to disappear as the children grow older.

Two hypotheses have been put forward to explain the way in which physical health may affect learning. First, children who seem to fatigue quickly become irritable and inattentive when their energy is at a low ebb. Second, fatigue may render them susceptible to diseases which delays learning by keeping the children out of school. According to Gates (1939):

The child whose physical stamina is low, or who is suffering pain or distress from malnutrition, fatigue, lack of sleep, infections, defective glandular activity and other physical difficulties, is certain to be handicapped in reading. (1939, p. 398)

Durrell (1940) listed low vitality due to malnutrition or glandular disturbances as producing inattention. He states further:

Loss of school time during the first year is one of the commonest causes of reading difficulties. At no time in school is long absence so disastrous. Childhood diseases result in absences of a few weeks during which a pupil may miss many of the words of a very limited vocabulary. (1940, p. 288)

Eames (1935) made a survey of the undiscovered or disregarded physical defects of 1,500 school children in Boston in an attempt to discover a relationship between these defects and school progress. The

results are shown in Table I.

TABLE I

FREQUENCY OF PHYSICAL DEFECTS AND DISEASES IN A GROUP OF 1000 CHILDREN
WHO WERE FAILING IN SCHOOL SUBJECTS AND 500 CHILDREN
WHO WERE NOT FAILING (Eames, 1935, p. 214)

Physical Defect	Percentage of group having defect	
	Failing	Not Failing
<u>Defects in</u>		
Eyes	59.0	21.0
Ear, Nose and Throat	28.6	3.6
Circulatory System	8.0	2.0
Gastro-intestinal Tract	3.0	0.2
Nervous System	3.2	1.2
Endocrine System	3.2	2.6
Skin	4.1	2.2
<u>Conditions of</u>		
Allergy	2.0	0.6
Malnutrition	10.0	3.0

It can be seen that the group who were failing have more physical defects than the group who were not. Whether they were causes of the failure was not shown in the study but Eames asserted that in general, physical difficulties impeded learning by reduction of vitality and the impairment of general health.

Witty and Kopel (1939) concluded that school absences resulting from poor physical health might result in failure but not necessarily so.

Monroe (1932) made studies of physical disorders which led her to believe that there were no significant differences between good and poor readers in the number of diseases, operations and accidents occurring during the school year.

Although there was not agreement among investigators of physical fitness and its effect on learning, they all suggested that physical ailments were an aggravating influence when combined with other handicapping conditions, and thus may contribute to failure.

This point of view has implications for the age at which children should be introduced to formal school work. Between the ages of five and one-half and six and one-half years when most children enter school, there are fundamental somatic changes in the child. His body chemistry undergoes subtle changes which will not be matched in intensity until he begins to enter the adolescent period. These changes are reflected in an increased susceptibility to infectious diseases. In addition to the diseases which he is prone to contract at five, German measles and mumps become prevalent while diphtheria and scarlet fever reach a peak. Gesell and Ilg (1946) says that a child is not as robust as he was earlier and there are other developmental changes which affect the vision and the whole neuro motor system. He tires easily and yet hates to give in by resting; inflammation of the middle ear becomes a troublesome illness; nose and throat difficulties rise in frequency; the mucous membranes seem to inflame easily and the eyes may develop styes; the throat

becomes red and infected with the infection spreading to the ears and lungs; allergy responses are high either in the form of recurrent allergies or a new development of hay fever. The six-year-old is full of legitimate complaints of aches and pains in his legs, feet and arms. Jenkins, Schacter and Bauer (1953) attribute this to the uneven growth which is characteristic at this stage. Emotional tensions as a result of situations which seem too difficult for the child to cope with, bring on stomach aches and even vomiting. It can be assumed that in the more slowly maturing child, his already over-burdened body might find the strain of learning and the continued application to the complexities of school attendance almost unbearable.

Specific physical factors which may be related to learning are vision, hearing, speech and lateral dominance. Since reading is concerned with the interpretation of symbols, the ability to see these symbols is extremely important. One of the objections to the early introduction of reading has been the relative immaturity of young eyes. A child who is farsighted because of slow physical maturation will almost certainly have difficulty with reading which requires a child to see things which are smaller than those he has been accustomed to noticing.

Besides this characteristic immature vision, many children have defects of vision. Myopia, astigmatism, hyperopia, binocular incoordination and anisometropia are most frequently mentioned as visual defects of young children.

Investigators into the effects of visual difficulties do not

agree as to their importance in connection with reading problems.

Harris (1956) says:

Although many studies on the relation of visual defects to reading ability have been made, an exact statement of the degree to which poor reading is caused by poor vision cannot yet be made. One reason for the discrepancies is the fact that the subjects used and the vision tests employed are frequently not comparable. But there are more fundamental reasons why one cannot state exactly how much poor reading is caused by defective sight. A relatively slight visual defect may give one person acute discomfort, while another person may not be bothered by it. People vary in their ability to adapt themselves to a handicap. . . . If poor vision is a child's only handicap, he may be able to become a good reader in spite of it while if he has several other handicaps as well, the combination may be too much for him. (1956, p. 234)

Defects of vision can be easily overlooked since routine eye examinations do not always reveal the complete nature of the difficulty. The usual method of measuring vision in schools is to use the Snellen chart or a similar test. The child stands twenty feet away from a wall chart and tries to read the letters of different sizes. The one defect that such tests disclose is myopia but they fail to detect even moderate degrees of hyperopia or astigmatism and severe cases of poor fusion and eye-muscle imbalance.

Children do not always realize that they do not see well and may be able to adapt to visual defects by straining to see, by superior intelligence in interpreting blurred images and by persistence in spite of discomfort. However, Cole (1938) believed that:

. . . a child with visual difficulties might refuse or fail to read or become nervous, irritable and fatigued. The child might read well at first and do increasingly poorer reading. After resting, he might do well again. The brighter children might refuse to subject themselves to the discomfort, thus failing to learn to read, while the duller ones would keep right on trying, thus showing their discomfort. (1938, p. 338)

Gray (1937) was of the opinion that:

. . . many pupils read well in spite of visual defect but they might read better or with less discomfort if such defects were corrected or eliminated. In any event, the fact is now widely accepted that visual examinations are an essential part of every diagnosis (of reading disability). (1937, p. 507)

In order to secure meaning from the symbols which represent ideas, adequate speaking and hearing are essential. The child's first contact with language is through speech and a hearing impairment may retard speech development by the incorrect perception of speech sounds. It may also limit his experiences and increase his problems of communication in the ordinary classroom. It is often responsible for the lack of interest in oral language, lack of social adjustment and the inability to follow directions.

In a study by Bond (1935) it was found that there was a significant difference in the hearing ability of good and poor readers in the second and third grades and that partly deaf children were particularly handicapped in classes where oral-phonetic methods were stressed in the teaching of reading.

Yoakum (1955) says:

It would seem logical to assume that the pre-school child who has a hearing loss does not have the same ability to discriminate among sounds he hears and that he may have a smaller hearing vocabulary than normal children. Since reading as it is taught today assumes that a hearing-speaking vocabulary is basic for beginning reading, and since in learning to read the child must hear the teacher's explanations and be expected to profit from oral as well as silent reading, his hearing defect is likely to be a factor in learning to read. (1955, p. 59)

Many children enter school still talking baby talk or unable to make the sound of certain letters. This may be the result of a hearing loss or because of some malformation of the speech organs but is very

possibly due to the late maturation of essential speech faculties. Children's speech development follows a pattern and most speech difficulties are the result of auditory confusions. Children need time to develop discrimination between sounds and some need longer than others. Adequate speech usually follows the required degree of auditory maturity.

Sheridan (1948) has this to say about the rate of auditory maturation:

. . . not all children are ready for a direct attack on reading when they enter school, many will need a preparatory period; furthermore, a method of teaching which emphasizes the discrimination of sounds as a starting-point in learning to read only adds to their confusion and difficulty. (1948, p. 93)

Monroe (1951) agrees that children who have a speech or auditory problem have greater difficulty with phonetic analysis than those whose speech maturation has kept pace with other aspects of their development. She considers that inaccurate articulation may be a hindrance because it involves a confusion in sounds that are to be associated with printed symbols.

In a study by Davis (1938), the correlation between the speech ages of the first and second grade children was found to be small but significant. If other factors are equated it would seem that a child with mature articulation may be expected to read more quickly and easily and with more comprehension than one who uses baby talk.

In addition to the problem of a reduction in the efficiency of auditory discrimination, most authorities agree with Witty and Kopel (1939) that the emotional concomitant of defective speech may hinder

learning by causing self-consciousness, embarrassment and antagonism toward reading and other uses of language. This is particularly true where methods of teaching stress oral reading.

Similarly, children who have normal vision may lack efficient visual perception and discrimination. Nearly all the research dealing with factors affecting progress in reading mention this lack as a handicap to the child. Stone (1949) cites the study by Sister Mary Steinbach in which she investigated the factors which affect reading readiness. Of the six main factors which were found to be most closely related to progress in first grade reading, auditory discrimination was listed first and visual discrimination was third in rank order of importance.

The tendency for young children to make reversal errors seems to be the result of immature visual perception rather than faulty vision. Teegarden (1932) found reversals to be a characteristic of children having mental ages below six years while they were usually absent in children who had attained a mental age of seven or more. Witty and Kopel (1939) agreed with these findings and considered a tendency to reversals to be a function of maturation. Hildreth (1936) was also of the opinion that immature perception was typical of infancy and young childhood.

Harris concluded that although difficulties in visual and auditory perception and discrimination might at times be the result of neurological defects:

. . . the most probable explanation seems to be that the child has not learned to pay attention to these details, and still retains the uncritical and unanalytical attitude common in pre-school children; in

other words, he has not developed reading readiness in these important traits. Often these children make rapid progress in both visual and auditory perception when given specific perceptual training. (1956, p.231)

The significance of lateral dominance in learning has been one of the most controversial issues in the theories concerning reading.

Lateral dominance is the preferred use and superior functioning of one side of the body rather than the other. Literally hundreds of investigations have been made to determine the relationship of different types of lateral dominance and the presence of defects, not only in reading, but also in spelling, writing and speech. There have been many theories advanced which have not been proven conclusively but it would seem that mixed dominance has some relationship to reading disability. Mixed dominance is the term applied when the dominant hand and eye are on opposite sides or when the individual shows nearly equal use of both sides, in either hand or eye dominance. Harris (1956) concluded that such mixed dominance very often caused direction confusion which has a significant bearing on reading. Directional confusion appears to be most common in children who were slow in learning to talk and who used both hands equally well until the age of five or later without really good coordination in either. These children usually have a slow or irregular growth pattern.

Some directional confusion accompanied by reversal tendencies is very common among pre-school children and must be considered a normal characteristic up to the age of six. If the problem persists after instruction in left to right progression in reading and writing activities, it merits careful consideration as an impediment to reading

success.

Children who enter school emotionally or socially immature find it difficult to adjust to the task of learning. They may show their immaturity in a great variety of ways: they are shy and timid, self-centered, uncooperative in routine school activities, unable to get along with other children in either play or work; they cry and try to monopolize the teacher's attention; they can't take care of their clothing or play independently. There are many reasons why some children have not shown normal social or emotional growth. One is the differences in the individual development of children; another reason is unwise handling of the children in the home: over-protectiveness, sibling rivalry, inconsistent discipline, rejection by the parents, anxiety over parental quarrels or a broken home.

The child's first experience in school is critical to his adjustment. Prescott (1938) enumerated some of the problems the first grade child must adapt to:

. . . learning to get along with other children of many types; learning to get along with a group of parent surrogates in a variety of situations; establishing membership in a new social group; experiencing many situations where affection does not temper the requirements; learning to accept and live with one's own peculiarities of appearance, physical handicaps, racial and religious differences from the group; learning and accepting new group standards of behavior; learning new games and physical skills to maintain status . . . (1938, p. 231)

A child may be so preoccupied with these problems that he does not have the energy or the confidence to give his attention to learning. It is difficult enough for the emotionally resilient child but almost impossible for the child who has a pre-school history of emotional instability.

Frustration and failure in learning may further condition the child against learning to read. Durrell (1932) found that when there were confusions created by exposing an immature child to reading too early, there was mental blocking, additional confusion, discouragement, withdrawal of attention or meaningless activity induced by a fear of failure or ridicule and the child stayed on the learning plateau for a long time.

Bird (1930) studied one hundred children between the ages of four and six and found that thirty had habitual personality handicaps which interfered with their learning. They were classified as follows: two showed introversion; eight were retarded by shyness, lack of self-confidence, dislike of scrutiny or fear of the task; eight showed excessive dependence on commendation; two worked only for the instructor; four wished to win distinction by unusual behavior; two were anti-social as they teased, bullied and disobeyed, and four had vagrant tendencies such as flitting from one task to another and leaving unfinished work.

In their studies of many retarded readers, Monroe and Backus (1937) reported the following emotional factors as causes of the disabilities: general emotional immaturity, dependence on the mother, unreadiness to accept responsibility, infantile manner and interests and a resistance to reading as a step towards growing up; excessive timidity as a result of delayed social adjustment causing the child to be too shy to speak or attempt group activities; predilection against reading caused by identification with someone who could not read or who disliked reading and thought it too difficult.

Monroe (1951), in discussing the effect of emotional attitudes on learning, says:

A child's emotional balance or imbalance has a very definite effect upon his ability to learn and to retain what he has learned. Emotionally disturbed children who are placed in reading situations with pressure to learn when attitudes are not ready for learning may embroil reading into their general emotional disturbance. . . . even the best adjusted has at least a few momentary anxieties as he enters a new classroom. Even if he is bright enough mentally and has developed many of the pre-reading skills, it is unwise to begin reading while his school activities are permeated with feelings of anxiety and grief. . . Children who are at the five year old level of emotional development, whether actually five or older, lack the enterprise for such a prolonged and demanding activity as learning to read. Premature exposure to reading, before the child achieves enough emotional maturity to succeed, is likely to give him a serious setback in his desire to learn. (1951, pp. 22 - 27)

Robinson (1946) sums up the opinions and findings of authorities in the field of emotional and personality problems:

The severe maladjustments of the neurotic child are most evident; nevertheless, the minor adjustments which the child must make when he enters school are so many that he may not be prepared to devote himself to reading. Even though he is willing to learn he may be hampered by emotional immaturity, lack of confidence and security, unpleasant or indifferent associations with words, or excessive timidity. Failure to make the first steps in adaptation to reading may lead to frustration and all its accompanying reactions, such as inattention, lack of motivation, confusion and lack of application to the task of learning to read. (1946, pp. 81, 82)

The intellectual factor in readiness has received a great deal of attention in experimental studies. General intelligence was found to have a positive relationship with reading success but mental age was favored by Monroe and Backus (1937), Harrison (1936), Betts (1946), and Morphett and Washburne (1931), as the more significant factor in estimating reading expectancy.

Many investigators have attempted to discover the mental age at which to begin reading to insure success. The study which had the

greatest influence on educational thought in this respect was that of Morphett and Washburne (1931). They reported the progress of first grade children in Winnetka, Illinois, in relation to their mental ages when beginning reading. Children whose mental ages were below six at that time usually failed. The proportion of failure dropped as the mental age increased up to six and one half years; above that point nearly all succeeded. A second report in 1940, dealt with the long range effect of delaying reading until the middle of the second grade or until there was an average mental age of seven years and six months. By the end of the fourth grade these children for whom reading was delayed, had surpassed the control group who had followed the regular program. From these reports arose what Betts has termed a 'fairy tale', that a child must have a mental age of six and one half years to profit from initial reading instruction.

However, many other educators have agreed with the findings of Morphett and Washburne. Harrison (1936) says: "It has been found that in order to make any progress in reading a child must have attained a mental age of at least six years and that a mental age of six and one half years more nearly insures success." (1936, p. 6)

Bigelow (1934) tested children in grade four and tabulated the results according to the age of entry into school. She found that the children who entered grade one with a mental age of at least six and one half years had a much better chance of success than those who entered earlier.

Dean (1939) conducted a survey of five first grade rooms in

Billings, Montana. The subjects were selected in such a manner as to secure an accurate sampling of children. The teachers were experienced and of excellent teaching reputation. Intelligence, Readiness, Reading Aptitude and Reading Achievement Tests were administered by carefully trained and briefed testing personnel. The results are shown in Table II.

TABLE II

NUMBER OF CHILDREN AT EACH MENTAL AGE LEVEL AND THE
PERCENTAGE MAKING AVERAGE OR BETTER PROGRESS
IN READING (Dean, 1939, p. 613)

Mental Age in Years and Months	Number of Children	Percentage Making Average or Better Progress
5.0 - 5.5	7	29
5.6 - 5.11	9	33
6.0 - 6.5	28	29
6.6 - 6.11	24	58
7.0 - 7.5	24	71
7.6 - 7.11	13	85
8.0 - 8.5	6	100
Correlation between M.A. and Achievement - .62 _ .03		

Marked success was not obtained until a mental age of six years six months was reached. Dean concluded that: "It is extremely doubtful, therefore, whether children with mental ages of less than six years six months should attempt the reading process unless they have other talents

which might reasonably point to success." (1939, p. 613)

King (1955) selected 104 children ranging in I.Q. from 90 to 110. Of these, 54 entered school between the ages of five years and eight months and five years eleven months. Fifty entered between the ages of six years and five months and six years eight months. The mean difference in ages was nine months and a difference in I.Q. favored the younger group. Teaching was directed towards meeting individual differences but there was no sub-groups and no mid-year promotions. Cumulative guidance records were kept including the family, physical, mental, social and educational history of each child. The final appraisal showed retentions at the end of the fifth grade and achievement scores during the sixth grade. King found that there were more retentions among the younger children. The mean difference in achievement scores significantly favored the older group. In addition, the average daily attendance was lower among the younger children who also showed more indication of poor personal and social adjustments.

This evidence does not permit the conclusion that reading must be postponed until the child has reached the mental age of six years and six months. Other studies have proven that it is possible to teach normal children of three, four and five years to read. Gates (1937) presented data for four groups of children with widely varying mental ages who were exposed to different teaching methods and materials. This data showed that, under ideal learning conditions, children with a mental age of five years could be taught to read successfully. He says:

It is quite conceivable--indeed the evidence in general tends now definitely to show--the crucial mental age will vary with the materials;

the type of teaching; the skill of the teacher; the size of the class; the amount of preparatory work and other factors . . . It has been found that it is impossible to designate the optimum mental age for all children in all kinds of programs with all kinds of teachers. (1937, p.497)

Similar results have been obtained by other educators by similar adaptation of materials to the young learner. The Craig Method described by Bird (1930) consisted of a modified kinaesthetic approach. The children were taught to move their first two fingers over specially prepared, large script letters and word forms. These were made by dusting carborundum powder on melted glue applied to cardboard with a brush. The children were drilled in 'looking intently, tracing precisely and saying the sound distinctly'. Other activities included tracing around patterns of objects and filling in the spaces with 'orderly strokes', constructing words and sentences with a large movable alphabet, writing their own ideas and using the typewriter. Books were then presented. Results proved that the group had a mean chronological age of seven months less than the standard and an educational age of one year above the standard in subsequent achievement testing. This acceleration was attributed to early admission, an unusually early self-start and an effective method of teaching. It should be noted that, although this is not emphasized in the report, the methods and materials were individualized. Children were encouraged to use these materials by their accessibility and were not forced to manipulate them until they showed an interest in them.

The Calvert Method adapted by Hillyer and now incorporated into a remedial reading service by the Calvert School in Baltimore, Maryland (Anderson and Dearborn, 1952) offered the same strong kinaesthetic

approach to words, in that reading and writing began at the same time. Successful results have been claimed for this method.

One of the better known experiments to teach the very young to read was made by Davidson (1931). The subjects of her experiment were three groups of pre-school children; one was a group of five bright three year old children; another a group of four normal children who had reached their fourth birthday; and the third, a group of four dull children who were five years old. The mental age of all groups was approximately four. The reading lessons, ten minutes in length, were conducted daily and the experiment extended over a period of four and one-half months. Geometric forms which represented the configuration of actual words were used to introduce the children to reading. The children had to match the patterns first and then to match them with the words which they represented. Action sentences and word picture vocabulary were used to supplement the practice with the geometric designs. There were individual differences in each group but the bright learned more rapidly than the dull. The number of words which the children were able to recognize ranged from 20 to 269. On a standardized test of reading achievement, the average performance of the bright group exceeded the norm for the children at the end of grade one. Davidson attributed these results to the method employed which simplified difficulties.

Roslow (1940), Dunklin (1940), and McCracken (1952) verified these findings and suggested that reading failures could be eliminated through the use of appropriate methods and materials, rather than delaying the introduction of formal instruction.

The results of these studies, impressive though they may be, still do not indicate that it is wise to begin formal work at an early age. Although Gates demonstrated that children with mental ages of five years and over could be taught to read, he queried the desirability of doing so. In the conclusion of his report (1937), he says: "Decisions on the optimum time of introducing reading to pupils must be based upon investigations of the value of this activity at different stages of development." (1937, p. 508)

Harris (1956) feels that the amount that the children learn in the first year is not a satisfactory basis for judgment as to the ideal age or stage to begin reading. Consideration must be given to whether the effort in teacher and pupil time is justified by pupil progress and the permanence of results. Durrell (1940) stated that children who enter the first grade with a mental age lower than six may learn to read, but they usually require a greater amount of practice.

Baker (1955) examined the reading scores of 216 children who had received high scores on standardized reading tests in grade one but had scored below the national norms in grades four, five and six. She concluded that the intensive work in reading which produces high scores in grade one, so closely resembles the test exercises as to render the results invalid. She further adds:

Since the growth which appears to have been achieved in the primary grades was not continued we might ask what these high scores cost and what might well have been done instead of placing such great stress on achieving high scores on reading tests in the primary grades. (1955, p. 20)

Boney and Agnew (1937) conducted an investigation of the number of minutes the teacher gave each child of a group of twenty, and their reading progress through the primary grades. The school program was adjusted to meet the needs of those who were slow to learn and administrators and teachers 'continued to treat the child who appears destined not to read in the first grade as if we could make him read'. The results are shown in Table III.

The slower pupils took much more of the teacher's time and had less to show for it in the end. Some of these pupils required from six to ten times as much teacher time to grow a month in reading in the first grade as they did to gain a month in the third grade.

Case Number 18 entered school with a mental age of five years and three months and had an I.Q. of 96. He participated in all the activities of the first and second grades but showed little interest in reading. During the summer preceding his third year at school, his mother gave him some individual help with his reading. By the time school opened he was able to remember words which had baffled him in the first two years; he began to have a real enthusiasm for reading and to seek reading as a free time occupation.

Other cases appeared to have special periods of awakening or spurts when they made rapid strides in learning to read. The authors of the study questioned whether the time required to teach the slow

group to read in grade one was a good investment especially as it took much less effort to produce the same amount of growth at a later stage. As another educator, Elizabeth Irwin asked, "Why pay a high price for strawberries in February when you can have them abundantly in June at a moderate cost?"

The question of the permanence of the gains achieved through special efforts to teach young children to read has not received much attention in experimental studies. The study by Keister (1941), however, suggests that although young children may be taught to read, it is doubtful whether anything is gained in the long run. He followed the progress of three groups of children who entered the St. Paul, Nebraska schools in 1936, 1937 and 1938. While some had mental ages above six years, most were below that mental age. All groups received instruction from the same teacher who used essentially the same procedures with very little formal teaching in any field other than reading. The children were able to make normal progress and met the test norm of the first grade at the end of the year. When they were tested again at the beginning of the second grade, it was found that they had lost much of their reading ability. These losses were greatest for the children in the lower mental age groups. Subsequent testing also showed that the loss between Grades I and II was not made up in succeeding years and that these children remained permanently retarded to about the same degree as they were at the beginning of Grade II.

Hildreth (1950) has said in support of these findings:

The results of premature instruction are either impermanent or tend later to interfere with successful learning of these academic

skills. A frequent result is wrong learning, which must be corrected later through expensive remedial training. The premature teaching of skills also tends to have a disintegrating effect on the child's personality resulting in resistance and negativism or apathy undermining his security and intensifying unfriendliness between teacher and pupils. (1950, p. 6)

Whipple (1940) reported that in 59 of the 83 cases in a study of disabled readers, the evidence was indisputable that introducing the child to reading too soon was a major cause of his later reading difficulties. Jensen (1943) in another study of 22 cases of reading disability, classified nine of the cases as neurotic, which he strongly attributed to "the unrelenting pressure exerted to get the child to read when he was incapable of reading." Hamalainen (1952) studied the relation of entrance age to later school adjustment. It was the opinion of the principals of the 33 schools involved in the study, that significantly more underage children met problems of scholastic, social and emotional adjustment during their six years in the elementary school.

Perhaps, then, the time consumed in fruitless attempts to force a child to read in Grade I could be used to better advantage in other activities which would hasten rather than retard his development.

Schonell (1945) makes his position in this regard very clear:

Young immature minds need opportunity and time to "sort out things", to understand what they are doing, and to see the purpose in the operations with which they are confronted. My strongest plea in the teaching of reading is, don't hurry the children, don't expect too much in the early stages--do all you can to provide a language background. This slower, wider approach will repay doubly later on. The teaching of both reading and numbers would greatly benefit if we allowed the child time to really understand and assimilate, indirectly and informally, at their own pace and through carefully planned experiences, the fundamental concepts in these two subjects, namely the meaning of language and the meaning of numbers. (1945, p. 6)

There is, however, another point to consider in the question of

when to begin formal learning experiences. There are children who are ready to learn and care must be taken that there is not too long a delay in giving them the opportunity to show a desire to read and to become interested in practicing reading skills. (Hildreth (1936) says:

There is some evidence that when average children are not exposed to reading at least by seven or eight, the competition of other interests, the development of other skills, or even the chagrin of being unable to read may annihilate any desire to read and make subsequent learning difficult. . . . We should guard against swinging to the opposite extreme and adopting a laissez-faire policy. (1936, p. 145)

Harris (1956) says, in discussing proposals to postpone reading instruction until the age of eight or nine and to eliminate reading entirely from the first grade:

It does not seem likely that making all children wait a year or more before starting to read is the best solution. We do not make all of the people at a picnic delay their lunches because two or three are not yet hungry; and there seems to be no more reason to make children who are ready for reading wait because some other children are not yet ready. (1956, p. 104)

Recent studies have presented evidence regarding the effect of early admission on subsequent school progress when such admissions to school are based on apparent readiness as measured by psychological and physical tests.

The first study reported by Birch (1954) gives the school progress of forty-three children who were admitted early through screening processes, to twenty-seven representative schools in the Pittsburgh area. The youngest child was almost 5 years, 4 months and the oldest was one day short of being old enough to be admitted without special examination. At the time of the release of this report, the children were in the second semester of the third grade. One hundred and sixteen follow-up comments from teachers indicated that a significant majority of the

forty-three children were making satisfactory academic, emotional, social and physical adjustments to school. Where the comments were negative or showed questionable evaluation, these most often occurred in the first year of school. Later evaluations of the same child, usually in the third grade, showed that the child had overcome his initial difficulties.

Cone (1955) reported a ten-year follow-up study of children admitted early to the Brookline, Massachusetts School system. Here the children are admitted as early as 5 years, 3 months if they have a mental age of 6 years, 2 months, show adequate emotional and social maturity and are physically vigorous. All early admissions are conditional on the child's performance after entry and he may not be allowed to continue in school if his progress does not warrant it. Academic records of the younger group were superior to those of children entering at the regular admission ages. Marks awarded to the underage group began to surpass those of the older children in the first grade and the margin of superiority increased progressively through to grade eight. Failures, also, were fewer among the younger children.

Similar results have been reported for children admitted early through screening processes by Hobson (1948) and by Bevington (1957). The latter study by Bevington (1957) was undertaken in an attempt to determine the effect of chronological and mental age at the time of entry into grade one, upon the subsequent achievement of the pupils in the Edmonton Public School system where the children are admitted at the age of 5 years, 6 months if they have a mental age of 5 years, 9 months. The data for the study were obtained from the cumulative records of 640

pupils who had completed the first six grades in that school system. It included intelligence scores, the standardized achievement test scores, grade six final marks, regularity of attendance, the number of retardations, conditional promotions, honor standings and accelerations, and the social development as evaluated by the ratings given for six personality traits.

For comparative purposes the pupils were arranged according to their chronological ages at the time of entrance into three groups: (1) underage pupils who were under six years of age when they entered school with their birthdays falling between September 1st and February 28th; (2) normal age pupils who had attained a chronological age of six years and were under six years and seven months of age at the time of entrance; and (3) overage pupils who had a chronological age of six years and seven months or over at the time of entrance. Most of these pupils had not been allowed to enter the previous year because they could not meet the mental age requirement for early entrance.

These chronological age groups were subdivided into three mental age sections: (a) up to six years, three months; (b) six years, four months to seven years, three months; and (c) seven years, three months and over.

From the analysis of the data it was concluded that there was no apparent difference in achievement, pupil progress, personality development and attendance between the underage and the normal age entrants. However, it was shown that the overage entrants were not able to reach the standard of achievement attained by the other two groups by the end of grade six.

The investigation further showed that the mental age at the time of entry was a definite factor in differences in the achievement, pupil progress and personality development of the pupils considered in the study. The scores of the younger entrants were comparable in all areas investigated, with those of the older entrants of the same mental age.

However, there is no experimental evidence available to show the academic and psychological effects of such admission policies on those children who are applicants for early entry and fail to be admitted, or are removed following the trial period. From the study of Bevington (1957), it can be assumed that the children in the overage group who were admitted for statutory reasons after having been excluded the previous year, had not profited greatly from their year of chronological growth as it appears that they were still unable to reach the achievement level of the underage and normal groups after the same amount of time in school. Perhaps it is these children who should be admitted early to allow them a longer period in school to benefit from a directed learning environment.

Discussing the problems of the less able children of our society, Moore (1959) says:

Curricular problems cannot be solved merely by raising the age for admission. Aging one year more in a crowded environment with little intellectual stimulation, is not likely to eliminate the need for a transition room. It is not a question of living through one more year, but rather a problem of what development and learning takes place during that year. Instead of postponing the time of entrance, we would suggest appropriate facilities and programs for these children. . . . (1959, p. 196)

Summing up, the evidence indicates that it is impossible to set a minimal mental age at which all children should begin formal instruc-

tion in reading. There are too many factors besides intellectual growth involved. If his mental age is approximately six years and if other factors of physical and emotional development are favorable, the child can make satisfactory progress in learning in the ordinary classroom situation, provided the teacher is sensitive to the individual differences found in any group of children. No arbitrary set of specifications for learning will meet the needs of all children. It becomes a question, not of forcing or delaying reading for all children, but of pacing the instruction to suit the developmental status of each child and of providing the opportunity and the encouragement necessary to his individual growth in the skills of learning. Olson and Hughes (1944) described this principle in the following statement:

Differences in growth among children of the same age make for differences in reaction to the environment that is supplied. The child is not a passive recipient of stimulation. He reaches out for it according to the maturity of his total and partial growth and the energy at his disposal. He reacts selectively to the surroundings that are supplied and creates his own world of experience within them. Teachers may make full use of this "seeking" behaviour by providing a school environment in which children may find suitable experiences of a wide variety in kind and difficulty. No narrowly conceived curriculum of fixed content can attain this goal. (1944, p. 61)

The readiness question should not be, "At what age should a child be taught to read?" but "What is his present stage of development and what conditions will best foster his growth in learning skills?"

II. PRE-SCHOOL TRAINING

Although a child's developmental status indicates a readiness for learning, his environment and his opportunities to practice the needed skills play an important part in his success with school work. The

quality of his home experience and attendance at nursery school and kindergarten are part of his total readiness.

Harris (1956) says:

The general cultural level of a child's home is the most important determiner of the adequacy of his background of knowledge and experience. The young child whose parents are educated and cultured grows up in a home which provides many opportunities for favorable development. He is surrounded by adults who speak good English with a rich vocabulary and naturally tends to develop the same kind of speech. Through trips and excursions he is provided with broadening experiences. Books and magazines in the home attract him with their bright pictures and the stories which are read or told to him tend to develop an early interest in books and reading. Such a home is valuable in providing the child with a background of knowledge that will aid him in reading. (1956, p. 37)

Isaacs (1936), in discussing the individual differences found in school children, states:

One influence which makes for differences among children is found in their homes and general social background. One child will come from a home where there are books and talk, excursions and holidays, and where father and mother take an intelligent interest in the child's friendships and school progress. Another will come from an almost illiterate family life; a third from an overcrowded tenement where nearly every need of childhood is neglected. An in between these will be all varieties of goodness and badness, of help and hindrance. The children who are used to books and to discussion at home will bring a much wider background of general knowledge to their school work in every learning area. (1936, p. 26)

Betts (1946) adds that home influence is felt also in the attainment of emotional and social adjustment necessary to favorable attitudes towards reading.

Almy (1948) tested an hypothesis that learning to read in the first grade was positively related to the number of responses to opportunities for reading which the child makes prior to first grade entrance. She based her findings on the results of parent and child interviews conducted in a public school situation. She found that the kinds of

activities in which the child participates influences his approach to learning to read in the first grade. Pre-school activities such as looking at books and magazines and being read to contribute to later reading success. In addition, the opportunity to have questions answered about words, letters, signs and the reading on cans and packages and participation in table games which involve language, are important to the reading process.

Many studies have been made of the various home conditions which might be the possible cause of reading failure. Preston (1939) concluded that: "Evidently neither wealth, intelligence or education, singly or together, presupposes an atmosphere fit for the up-bringing of children." (1939, p. 173)

Ladd (1933), in a study of the socio-economic rating of the family, concluded that the relationship between socio-economic standing and reading was not very significant. Monroe and Backus (1937) suggested that economic insecurity rather than economic rating might be a cause of reading failure. Harris (1956) is of the opinion that it is not the wealth of the home but the intellectual and social environment with which a child is surrounded that counts in child development. He feels that some parents of very superior economic status may be too busy or too uninterested to give their children much personal attention, and, in effect, leave them practically in the complete charge of servants, and with few or no opportunities to play with other children.

McLaren (1950) conducted a study of the relationship of socio-economic status and reading ability of children from five to seven years

of age in Scottish schools. She concluded:

Attainment in reading at the early stages is definitely affected by the socio-economic status of the pupils, the percentage of attainment decreasing with increase in the percentage of necessity when the group averages are considered. It is probable that the social status is not the causal factor. The direct causal factors may be the level of mental age and the intelligence quotient and the cultural speech background. . .

In the learning of reading, speech is an important factor, and the models set by parents and companions are important in reading development. The child in the better class home is likely to be more favored than the slum child in this respect, the speech of the former being more correct and the vocabulary more extensive. The language handicap tends to be greater in school entrants in the poorer areas. (1950, p. 50)

Milner (1951) worked on the thesis that the extent of reading ability in Grade I children is related to certain ascertainable patterns of parent-child interaction in the family setting and that these patterns of parent-child interaction which are associated with high or with low reading ability, are correspondingly related to higher and lower family social status.

The data for the study was obtained for Grade I children in three elementary schools in Atlanta. They were selected to provide a broad social class representation. The children were given tests of mental ability and were interviewed individually and privately in their respective school settings. Trained social workers interviewed the parents.

Milner found that children who scored high on the tests are surrounded by a much richer verbal environment than are low scoring children. They have more books available to them and are read to by personally-important adults more than the low scoring children. In addition, they seem to have more opportunities for emotionally positive

interaction with their parents.

The lower class child lacks two things: a warm positive family atmosphere and an extensive opportunity to interact verbally with adults of high personal value to the child and who possess adequate speech patterns. The low scoring children seem to have either limited imaginative ability or are unable to express the imagination they do possess.

Milner suggests that the school must fill in the deficiencies of the home environment by recognizing the extent and nature of the lower class child's handicap and plan an appropriate instructional program to provide children who are low in linguistic skills with the kinds of emotional, motivational and verbal experiences which are necessary to their development. She feels that the schools penalize the lower class child when the emphasis is on verbal skills and that formally-conducted, rigidly-controlled Grade I classes with forty to fifty children to one teacher must be considered the most inappropriate motivation for learning possible.

Milner proposes two possible solutions to the problem. Nursery schools and Kindergartens with teachers who are the best trained and the best equipped, from the point of view of personality, should be available for the lower class population.

Her second proposal, until such pre-school provisions can be made, is to lower requirements in the first two years for the lower class. During these years many and varied verbal reading experiences would be introduced in a consistently emotionally-toned context. Subgroups of children would be small and the teacher could meet them on an

individual basis during the school day. Thus there would be warm positive inter-personal self-expression between teacher and pupils in a way which was meaningful to the child.

The study by Hilliard and Troxell (1937) would support the importance of the cultural and home background in readiness for reading. The subjects of their investigations were two groups of kindergarten children with normal intelligence quotients but differing in the richness of background as determined by amount of travel experience, opportunities to enjoy motion pictures and radio, the number of children's books in the home and other factors related to the reading environment. The children's progress in reading was followed for two years. On the whole, the children with rich backgrounds had an advantage over the other groups and were better equipped to attack the printed page because of their enriched understanding of words and ideas. The authors concluded that "one large task of the kindergarten teacher is to enrich and broaden children's backgrounds."

Teegarden (1932) found, in measuring the contribution of the kindergarten to beginning reading, that 90 per cent of her subjects who came from superior homes, made satisfactory reading scores whether they attended kindergarten or not. Seventy per cent of children from middle class homes and who were kindergarten trained made satisfactory progress as compared with 56 per cent who were not kindergarten trained. In industrial districts 40 per cent of the Grade I group with kindergarten experience were successful readers as compared with 34 per cent of the group without such training. Similar results have been obtained by

Fast (1957) who compared the effect of kindergarten training and no kindergarten training upon the ability to learn to read. Tests of readiness and reading achievement at three different times during the school year showed significantly superior progress for the kindergarten-trained beginners.

TABLE IV

THE MEANS ON FOUR TESTS AND THE SIGNIFICANCE OF DIFFERENCES
BETWEEN KINDERGARTENERS AND NONKINDERGARTENERS EQUATED
ON I.Q. AND M.A. (Fast, 1957, p. 56)

Month of Administration	Test	Mean Scores		Subjects Equated on	
		K	Non-K	I.Q.	M.A.
October	Reading readiness	8.67	4.03	0.0025	0.0025
February	Word recognition	13.71	11.83	0.028	0.013
February	Paragraph reading	5.45	3.96	0.018	0.005
May	Paragraph reading	13.30	9.54	0.0015	0.035
<p>N 180 Kindergarten 134 Non-kindergarten 46</p> <p>Mean scores were compared using a one-tailed "t" test for matched individuals.</p>					

Cowin (1951), Sheldon and Carrillo (1952), and Bergamini and Swanson (1954) found that kindergarten training resulted in small gains in reading readiness except in the way in which social growth affected the adjustment to the first grade program.

Although there is evidence to prove that kindergarten attendance is a significant factor in developing readiness for learning, the development of reading ability is not one of the objectives of the kindergarten. Witty and Kopel (1936) state:

Undoubtedly the kindergarten serves a very significant purpose in preparing for reading in the first and second grades. But its function must never be thought of in terms of such narrow concepts. The kindergarten is a place wherein children are learning basic attitudes and acquiring new, varied and vital experiences which lead children to be co-operative, exploratory, self-directed and relatively independent. It should never be conceived as a place wherein most children receive primarily a preparation for reading. (1936, p. 401)

A survey of the pre-school institutions of Alberta by Olson (1955) revealed that 64.7 per cent of the fifty-one grade one teachers replying to the questionnaire were in favor of pre-school training, 13.7 per cent were not in favor, 17.6 were undecided and 4 per cent did not reply. Most of these teachers stated that printing and reading pre-primers were not suitable activities for a pre-school program. The activities which they endorsed were listening to stories, reading picture books, self-directed art, singing and listening to music, rhythmic activities, routines of self-care, nature study, excursions, crafts and handwork and free play, indoors and out. Parents canvassed in the same study felt that pre-school training had value in helping their child to entertain himself, to become interested in school, to enjoy music and singing, to respond to rhythms, to respect the rights of others and to solve his own problems. They were dubious as to whether it had any value in helping him use language more fluently or to understand the community.

Smith (1936) suggests that even if the children have had kindergarten training, there should be a transition period before they are

plunged into organized formal reading instruction in the first grade.

Hildreth (1950) agrees that:

Even though a substantial proportion of five year olds attend kindergarten the need of providing a first grade program suited to immature beginners would still exist. The common belief that a few months of kindergarten experience is the equivalent of the same amount of readiness experience for the six year old is erroneous. The two are not equivalent because even the best kindergarten training does not compensate for added months of mental growth at these early levels. (1950, p. 37)

Betts (1946) says that since first grade children are a year older than kindergarten children, the range of learning readiness will be greater and there will therefore be a greater need for a specific pre-reading program to meet individual differences; a program which will develop skills which are related to reading.

Experiments with pre-reading or readiness programs have proven successful in many school systems. Ring (1940) compared the progress of a group of children who were given a half year of readiness training in grade one with that of two other groups of similar size, chronological and mental age but who began the regular reading program at the beginning of the year. The readiness group advanced at a faster rate when finally introduced to reading than did the control groups and, by the end of their second and third years in school, the experimental group had achieved the same reading status as the control groups even though they had received five months less training in actual reading. Teachers who participated in the experiment were of the opinion that they noted a superiority in the physical and emotional adjustment of the readiness group.

Scott (1948) reported the results of an experiment in which

children were taken from the kindergarten and given training in a readiness class. A year later they were compared with children of equal intelligence and chronological age who had remained in the kindergarten or who had not had kindergarten experience. Comparisons were made between their scholastic marks, the amount of reading materials covered and the quality of their social attitudes, habits, skills and progress. The results favored the experimental readiness group but since much of the data obtained was subjective and the number of pupils so few (34 pairs of children) the study was not statistically reliable.

Petersen (1937) and Johnson (1942) have reported similar successes with readiness programs. In studies by Raybold (1929) and Woods (1937) it was found that readiness classes had reduced the retention of children in grade one by significant percentages.

Research in all fields of child study has proven the importance of the early years of childhood to later adjustment. Gans (1952) expressed the present concept of professional and public responsibility for continuous early education:

Specialists in the fields of health, welfare, sociology, anthropology, law and education have shown that the personality of the child is developed in the early years of life. What happens to the young child in the home, the neighborhood, and the community will largely shape his chances for a wholesome, satisfying life. Consequently, what he experiences in the first years in school has more influence on him than any later education. . . . Young children should have as their right, group experiences in good nursery schools, kindergartens and primary grades. This experience should begin at the age of three for some, at four for the majority and should be available for all at the age of five. . . . (1952, pp. 44, 45)

The evidence is conclusive that the nature of the child's pre-school experiences predisposes him to success or failure with formal

instruction in the first grade. Kindergartens seem to fill the needs of those children who require certain social, emotional and experiential contacts which their homes are unable to provide. The studies reviewed seem to indicate that the inclusion of a specific period of reading readiness training is also beneficial to the progress of the children regardless of their pre-school learning.

Since the differences in pre-school influences are many and extensive, early recognition of these aspects of readiness for learning is imperative. The school must assume the responsibility for assessing the need and for providing the kinds of educational experience which will compensate for the lack of satisfactory pre-school training before the children are introduced to formal work.

III. THE QUALITY OF EDUCATIONAL EXPERIENCES IN SCHOOL

Failure of first grade children may not be due exclusively to characteristic limitations within themselves or in their pre-school environment. The nature of their educational experiences on entry into school determine whether, at their stage of development, they are ready to make satisfactory progress. The educational philosophy of the school system, the organization and size of the classes and the ability and personality of the teacher will all have direct bearing upon whether the children are ready for grade one.

Gates (1937) has shown that readiness for reading will vary with the materials, the type of teaching, the skill of the teacher, the size of the class, the amount of preparatory work, the thoroughness of the

testing program and the treatment of special difficulties.

Stone (1950) listed overcrowded classrooms, mass instruction, undifferentiated materials and procedures and lack of teaching skill as causes of poor readers. These conditions also produce lack of motivation and discouragement which complicate the task of learning.

Hildreth (1936) said that when faulty methods, unsuitable material, lack of material, poor distribution of drill and practice, incompetent teaching, an inflexible approach or a too rapid increase in vocabulary occurred in beginning reading instruction, a section of the children would be automatically unready for the program. Only the older and brighter children could compensate for these instructional limitations. She was of the opinion that it was conceivable that a child might be ready for an informal program much earlier than he might be for a highly analytical book reading program.

Strickland (1949) says:

It appears clear that the success a young child achieves in learning to read depends upon many factors within the school program as well as within the child himself. If the school is one in which children move without strain from the home or kindergarten into an experience program suited to their maturity and adjusted to their individual needs, children may be successful in meeting the school's expectations for them at an age slightly under six years. If, in contrast, the school is one in which little children are almost literally screwed into screwed down desks and put through a rigid skill-drill program, it may take a mental age of eight or older for some children to succeed. . . . The problem of age of entrance is solved only when children of all ages are allowed to grow and develop as their needs indicate. No other solution to the age problem can be more than a temporary expedient. (1949, p. 12)

After an extensive review of the literature pertaining to the optimal time to begin formal reading instruction, Almy (1958) concluded that: ". . . age per se is probably not nearly so important as

is the kind of program the child encounters, and its relation to the expectations for school success."

The organization of the school program has an effect on success in learning. If the graded system of organization is strictly adhered to, the implication follows that the child must achieve a certain predetermined minimum standard. The uneven growth of children in the early years may make it highly probable that some children may have difficulty in meeting these standards in their first year in school. This raises another problem. Are such children to be retained in grade one or are they to be promoted to the next grade on a chronological age basis? Research has shown that repeating a grade has little positive effect on achievement and unwholesome effects on behavior and adjustment. Chronological age or social promotion eliminates failure and limits psychological damage but may not provide for the needs of the early-maturing or of the slow-growing children.

These disadvantages may be mitigated to a great extent by the adoption of the primary unit plan of organization which is receiving increasing attention and is in the experimental stage in this country. The primary unit is a flexible, ungraded administrative plan designed to facilitate teaching when child development is stressed. The primary program, the ungraded primary program, continuous progress, are all variations of a basic plan. They are characterized by continuous learning experiences for the child; teacher assignment to a group for longer than a one year period; flexible groupings which permit regrouping when necessary; removal or minimizing of grade lines which places

emphasis on achievement rather than failure; and promotion based on total development and maturation rather than academic achievement alone. It carries on the work of the first three years of schooling if the children are admitted to school at six and four years if the admission age is five. Children are grouped in terms of organic and social maturity and learning readiness. Groups progress in their learnings at rates appropriate to their maturity levels, readiness and capacities. The child who outstrips or falls behind his group may be moved to another group at any time for the particular learning experience that he needs. Some high capacity and early maturing children may complete the three years of work in two years. Those who grow more slowly may require four years but at no time will they fail. These children have time to consolidate their strengths and to mature out of their weaknesses without distress and pressure. The teacher gains a more intimate knowledge of each child over a two or three year period as compared to a one year period. This also permits a greater rapport and understanding between the home and the school. For the child it presents more security and fewer readjustments to school.

Imhoff (1959) summarizes the opinions of Prescott (1957), Goodlad and Anderson (1955) and Caswell and Foshay (1957) when she states:

Such an organizational plan in any form is an effort to create a learning environment in which a young child can develop to his maximum academically at the same time that his social and emotional needs are met. To date it is one of the soundest plans we have developed for young children; continuing research substantiates it. In general, parents and teachers who have experience with it support it wholeheartedly. (1959, p. 129)

Although school programs and their organization are an important consideration in successful learning, Betts (1949) points out that:

A modern school program is developed in terms of pupil needs but is administered in terms of individual teachers. In actual practice the teacher is the key to what happens in the classroom. Her background, her outlook on life, her reason for being a teacher, her professional preparation, her emotional stability, her personality and her scholarship - all these and kindred factors contribute to success in achieving a high level of professional efficiency. (1946, p. 716)

Logan (1960) subscribes to the belief of the early educators of young children, such as Pestalozzi and Froebel, that all children need a teacher who can and will give them affection. Lambert (1960) states that the teacher's behavior affects the children's sense of security, freedom from tension, and the emotional tone of the classroom. Some teachers have trouble accepting what they call bad behavior in some children. The way in which a teacher corrects a child, how she asks for work, how she feels about him as a person are significant factors in modifying the child's performance in the classroom. She suggests that teachers need to be made more aware of the dynamics of child behavior during their teacher preparation. To this, Leavitt (1958) would add a knowledge of educational foundations, educational psychology, child development, principles of education, curriculum, guidance and special methods of teaching, as requisities in the training of teachers of young children. Besides this professional knowledge, he thinks there is an urgent need for mature teachers with sensitive, understanding personalities who are warmly outgoing and self-confident.

Witty and Kopel (1939) were convinced of the importance of the teacher's personality to children's success in school. In their study

of the causes of reading difficulties, they found that:

A strident voice, coercive methods, worship of routine and order, slavish devotion to norms and many other factors in teachers' personalities usually are unmeasured but significant items in an objective appraisal of a child's failure and his needs. (1939, p. 233)

Hildreth (1936), while agreeing that teachers who value the textbook more than the child and who place regimentation ahead of child adjustment, make a satisfactory learning situation impossible, suggests that this is the natural by-product of large classes:

These problems will never cease so long as forty or forty-five children are crowded into one room under the direction of a single teacher. Problems of external discipline must demand more attention than the children's personal adjustment under these circumstances. . . . Class size is particularly significant at the primary level. (1936, p.313)

Stone (1950) says:

The optimum number of children that should be assigned to the beginning first grade teacher or to other primary school teachers is not known, but it seems reasonable to assume that the more there are in a classroom above a certain minimum, the more difficult it will be to give needed individual attention. (1950, p. 224)

Gates (1929), Deputy (1930) and Betts (1930) stressed the importance of adequate first teaching in the prevention of later insecurity and failure in reading. In this opinion they have the support of Witty and Kopel (1939) who state:

The prevention of faulty habits of initial reading require very careful and almost continuous supervision of every child's reading acquisitions. The younger or more mentally immature the child, the more he needs the individual attention and guidance which it is impossible to give in most crowded first grade classrooms. . . . The young child, in the typical large classroom, may develop and perpetuate faulty reading techniques. (1939, p. 401)

The size of the class has the effect also of dictating teaching methods and the availability of suitable teaching materials. Methods tend to become formalized and mass instruction takes the place of

adapting the procedures and materials to the varying abilities in the class. These individual differences will necessarily be greater in large classes and will require an adequate supply of differentiated materials to meet the needs of the children. Whether these are available will depend on the educational attitudes and insight of the administrators and the tax paying community.

Thus it would seem to be necessary to assess the type of school program confronting children upon entry into the first grade, before setting an optimal age for beginning formal schooling. Each school administration would need to examine its expectations of pupil progress, its philosophy of education, the qualities of its teaching personnel and the materials and facilities for instruction, to be able to decide at what stage of the children's development they could succeed in the school system.

IV. SUMMARY

Experimental evidence appears to indicate that readiness to begin formal instruction is a composite of the many factors of innate ability, maturation, environment and the interaction of these factors with each other. This complexity makes it extremely difficult to isolate and measure the individual factors, to determine their order of importance and to state an absolute standard of readiness which all children must possess to succeed in school. It is evident that neither chronological age nor mental age are completely reliable as measures of the optimal age at which all children can profit from formal instruc-

tion.

Since readiness appears to be a developmental process, it is not a static conception. Some determining factors are the result of maturation; others are acquired and are amenable to training. Uneven growth patterns and differences in developmental opportunities, both psychological and experiential, produce variations in degrees of readiness in children of the same life age. Organismic maturation cannot be hurried but an environment which takes advantage of emerging capabilities seems to encourage the growth of essential skills and attitudes for learning. This would seem to imply that although children should not be forced beyond their readiness, formal instruction should not be withheld from those who are adequately prepared to meet the tasks involved. It therefore becomes necessary for schools to modify their programs to suit these characteristic differences.

In setting an entrance age at which optimal benefits can be obtained from school attendance, consideration should be given to the children's total developmental status, their pre-school opportunities which the school may need to supplement, and the program of the first years in school, particularly its provision for individual differences, through organization, choice of instructional materials and methods, class loads and the professional competency of the teachers.

CHAPTER III

PRESENT PRACTICES IN THE ADMISSION OF CHILDREN TO SCHOOL

A review of the 1956 UNESCO Education Bulletin reveals that the admission ages to school in the various countries of the world range from five to seven years. In the Commonwealth countries of Australia, New Zealand, South Africa, England, Scotland and Northern Ireland children enter school at the age of five. Canada, Italy, Japan, Hungary, India, and the United States favor the age of six while in the USSR, the Netherlands, Brazil, Denmark, formal schooling does not begin until the age of seven. These generalized admission ages may vary through local practices which make exceptions in terms of permissive entrance in some cases and the date of the child's birth in others. It is the intention of this report to examine the factors affecting school entrance in the English speaking countries only.

In the United Kingdom, education is compulsory at the age of five. This age was fixed in about 1876. Rusk says (1958):

Why it was fixed at five we are not sure. It was doubtless the result of the great activity in the infant school movement during the nineteenth century. . . . Dr. R. F. Young of the Board who prepared the official report (Infant and Nursery Schools, 1933) and I were unable to assign a definite reason for the entering age being fixed at five.

Australia, and, New Zealand have followed the practice of Great Britain, and although education is not compulsory until the age of six in Australia and seven in New Zealand, children may be admitted to school as early as four and a half to five years of age. This means that the enrolment of five-year-old children is almost universal in

these countries.

European children in the states of the Union of South Africa are admitted to school at the beginning of the year in which they become six, but education is not compulsory until the age of seven. The first class may be composed of pupils whose ages range from five to seven years.

E. E. Van Kerkin, Adjunct-Director of Education for the Orange Free State, in a letter in which he discusses the admission of young children to school, refers to the problem as a 'vexed question'. He adds:

The easiest way out of the difficulty seems to be to fix an age limit (as we have done) based on practical experience with children over the years. Such an age limit can however only represent an average optimum age with a fairly wide deviation from the average, making it impossible to do the best thing in many individual cases.

Otto (1950) says of American admission practices:

There is popular acceptance of the notion that age six is the time when children should enroll in the first grade. How this happened to come about is not clearly understood. Perhaps the practice evolved because six-year-old children were mature enough to leave home and to travel the necessary distance to school. . . . Undoubtedly the varying ability of young children in different parts of the country to travel to school was given consideration in the formulation of the compulsory school attendance laws because in only three states are children under seven years of age required to attend, but all states permit the attendance of children younger than the lower compulsory attendance limit. Within this framework of popular opinion and legislation, it has become almost universal practice in this country to have children enter the first grade at the age of six. (1950, p. 370)

The 1958 edition of the Educational Research Service, which reports the admission policies for kindergarten and first grade of 532 school districts, shows that:

First grade admission policies are concentrated at 5 years, 8 and 9 months. Of the 532 school systems, 145 (27.3 per cent) establish

the entrance age at 5 years, 9 months, while 123 (23.1 per cent) designate 5 years, 8 months. Others range from 5 years, 3 months to 6 years, 8 months. Many of the 35 school systems recorded as having no established minimum entrance age for the first grade do have a policy for kindergarten and require kindergarten experience for admission to Grade I. A few have two different age requirements, depending upon whether or not a child has had kindergarten experience. (1958, p. 2)

Exceptions are made to these minimum age policies in 90 of the school systems replying to the questionnaire sent out by the Educational Research Service. These exceptions are based on psychological tests of intelligence, maturity and social development supplemented by parent conference to determine the readiness of the underage child. It is stated, however, by 361 school systems, that no exceptions were made to the state law which forbids deviation from the legal entrance age except in the case of children who transfer in mid-term from other systems where earlier attendance is permitted.

Some 31 school systems reported that a change in entrance age policy was either under way or anticipated. The nature of the change was not indicated in all cases but where this information was specified, the new regulation would require that a child be older than under previous rulings. Reasons given for the change dealt with the immaturity of young children to meet school requirements, the differing maturation rates of boys and girls and graduation of many children from high school before the school leaving age of 18 years which required a wait of several months before permanent employment could be obtained.

In Canada, permissive admission policies result in children entering school as much as from four to six months in advance of the accepted legal entrance age of six years. In Vancouver, Ottawa, and

Montreal a child may enter at the age of 5 years, 8 months, at 5 years, 9 months in Winnipeg and as early as 5 years, 6 months in Edmonton, depending on his mental age.

A mere statement of the chronological age at which children are admitted to the schools of any educational system does not give a complete account of its entrance age practices. The program of education for the first grade and the expectations for pupil progress must also be included in a comparison of admission policies.

Many people still think of education in the infant schools of England in terms of the large galleries of five-year-old children being instructed in the formal work of the three Rs, which were common in the early days of the establishment of these schools. Such is not now the case. Gardner (1949) says:

They (Infant Schools) have become increasingly less formal in the type of education offered and their physical amenities have steadily improved. . . . New Infant School buildings have, on the whole, reflected the growing appreciation of the needs of young children: they are light and airy, each classroom opening on to a garden or playground where growing plants are to be found; furniture is light and movable, and the space provided (though seldom, even yet, enough) is designed for 'active' methods of education.

We still have many Infant Schools where education is of the older traditional type, where there is much too much sitting still and very little exercise except during official "play time" and during periods of "physical training", and where instruction in reading, writing and arithmetic is still uppermost in the teacher's mind. But the number of such schools is steadily declining, and they are giving place to schools in which the child is an active learner and where his physical needs are as carefully considered as in the Nursery School. (1949, pp. 11, 12)

The postponement of systematic teaching in reading, writing and arithmetic until the children are six is becoming more usual now in Infant Schools, and comparative tests have shown that the children do better when five-year-olds are left free to begin on these subjects, or not, as they wish. . . . Once the desire to read and calculate is aroused the six-year-olds and the seven-year-olds benefit from a certain

amount of direct teaching and practice work, done with the object of gaining skill - provided that the more immediate purposes of the child are kept in sight by the frequent use of real situations which require reading, writing and calculation. (1949, p. 21)

On the subject of the most suitable school experience for five-year-olds, Boyce (1953) says:

For various reasons five-year-olds cannot make use of the sort of instruction usually associated with school life. . . . Thousands of five-year-olds submit daily to lessons but few of them make any use of the immense efforts which their teachers put into these lessons. The majority have a complete lack of interest in the mechanics of any skill and do not profit by instruction in 'how' until they have made their own spontaneous efforts in any particular direction. There can be no more question of teaching them 'how' to read, write or do sums before they have made their own attempts through spontaneous activity, than there can be of teaching babies to walk before they have made attempts to stand and to crawl. . . . So because five-year-olds have no need for instruction, we should banish it and its neat, tidy steps and orderly stages. However though they do not want lessons, they have a great need to understand themselves, other people, the world and how it works. (1953, p. 133)

Miss B. O. Naylor, writing from the External Relations and General Branch of the Ministry of Education for England, has stated the philosophy that is now prevalent in the educational thinking of that country:

The fundamental principle of our education system, embodied in the Education Act of 1944, is that children should be educated according to their ages, abilities and aptitudes. Although under Section 35 of the Act children must commence school at the age of five, and attendance from then until they are 15 is compulsory, there is no prescribed age at which children must start formal study of, say, the "three R's". Children develop at such different rates that it would not be practicable to fix an age for commencing any particular standard of study; in fact, one of the main aims of the "Infant" stage of our education system (ages five to approximately seven) is to introduce the children gradually to all forms of learning, including the "three R's". From the earliest stages in school children are introduced to pictures, books and many kinds of pre-reading material so that when they show both interest and aptitude they are given the teaching they need. This may happen at any age from five to seven years, but it is most common in the sixth year. During their time in the infant school most children begin to learn to read, to write and to deal with numbers. Many progress

well and a range of achievement is expected and catered for.

A Memorandum on the Curriculum issued by the Scottish Education Department (1950) states:

Since much of the "toil and tears" of our schools is due in no small measure, to instruction given prematurely, a precipitate plunge into the three Rs is deprecated, and the curriculum suggested for the infant classes may appear less ambitious than that attempted at present in many schools. It is believed, however, that a slow approach at the start will not hinder but may, indeed, accelerate progress later on. (1950, p. 7)

In another bulletin from the same department, Reading in the Primary School, An Extract from the Report of the Secretary of State for Scotland on Education in Scotland, 1954, this attitude towards early instruction in reading, is more clearly stated:

. . . most children come to school with a vocabulary of spoken English insufficient to warrant an immediate start to lessons in reading. Infant teachers are doing much to make good this deficiency by conversing with the pupils and encouraging them to talk about themselves and their interests, by discussing pictures, by telling and reading stories, and by dramatizing scenes from these stories. But, perhaps because the cramped conditions of many infant rooms make it difficult, perhaps because traditional Scottish practice dies hard, most infant teachers do not yet give their pupils sufficient first-hand experience through activities akin to those of the nursery school.

All pupils are not ready to begin formal instruction at the same time nor are they able to maintain the same pace thereafter. The rate at which individual pupils make progress in the preparatory training depends partly on their background and partly on their innate ability, both of which may vary very widely indeed. It is only by group or individual methods that instruction in reading as in other branches of the curriculum, can be fitted to the aptitude and ability of the child. (1954, pp. 1 - 3)

Admission ages in Australia vary from four and a half to six years in the different states with five being the most favored age. Upon their entry in to school, the children are assigned to a kindergarten group; they do not necessarily begin formal instruction at this time. The publication of the Department of Education New South Wales

CURRICULUM FOR THE PRIMARY SCHOOL (1952) emphatically states that:

It cannot be too strongly emphasized that many of the reading failures found in later life have their origin in classes where children are given too much and unsuitable reading instruction too early and receive insufficient individual attention. The reading programme should be based on the principle that children should be given a carefully planned and graded pre-reading programme.

No formal reading lessons should be given in the Kindergarten. The programme should be designed to promote reading readiness. The teacher's aim should be to arouse in the child the desire to read, to develop in him those auditory and visual skills which are necessary for reading and to provide him with such experiences as will give him the vocabulary and the understanding to grasp the meaning of what he will read. Modern research has shown that the child is not ready to begin formal reading before he has attained a mental age of at least six years. (1952, pp. 82, 83)

In Western Australia, South Australia, Victoria and Tasmania there is a similar feeling that children entering school at the age of five require a period of preparation for formal instruction. Kindergarten classes, Transition Classes and Readiness Programmes are part of the educational systems of these states. The organization of these classes is explained in a letter from Mr. W. T. Place (1953), Secretary of the Education Department in Melbourne:

Pupils approaching the age of 6 at the beginning of the school year are placed in a class, which after an introductory period of readiness work, proceeds to the program for Grade I and completes it in the year. Those at an age which makes it unlikely that they will be ready to commence reading or number work for some time, are placed in a class which will spend a preparatory year in kindergarten type activities including readiness work in reading and number. This group will proceed to the Grade I program proper the following year.

This classification within Grade I is by no means rigid; the intention is for transfer from one type of class to the other to be made easy so it may be made possible for bright and mature young children to proceed straight to the Grade I course, while slow learners may be retained for longer periods of readiness work. As a result the general pattern of acceleration and retardation in state primary schools - viz.: .03% two years accelerated, 8% one year accelerated, 21% one year retarded and 5% two or more years retarded - is set in

Grade I and modified to only a small degree in subsequent grades.

In Queensland, when the primary school syllabus was revised in 1952, children were permitted to enter school if they had reached the age of four years, six months when the school year commenced and began formal work immediately. As many children had difficulty with the course, a preparatory year with little formal work except in the last three months was introduced. However, children who had reached the age of five years, three months were enrolled in grade one. To ease the teacher shortage, the preparatory year was abolished in 1953 and the children were not enrolled unless they had reached the age of five years at the beginning of the school year. The present practice is that the first month or two of the year in grade one is principally devoted to "readiness" activities. H. G. Watkin, Director-General of Education (1958) says:

Our changes during the last eight years suggest that under Queensland conditions most children are ready for formal work soon after the age of five years. Younger children appear to be handicapped by the introduction of formal work in number and reading.

The Education Department of Western Australia has initiated research into the problem of school readiness and has developed an experimental readiness test. In 1958, it began a program of readiness testing and education which would extend over the first twelve weeks of the first grade. Since these are still in the experimental stage and have not been fully evaluated, they have not been adopted as a standard program.

As early as 1936 educators in New Zealand were dissatisfied with the practice of introducing formal instruction to five-year-olds.

Campbell (1940) reported that:

It has often been pointed out (recently by the Education Department itself) that the procedure still fairly common in New Zealand infant schools of introducing children to formal work in the 3 Rs shortly after entry at the age of five, runs counter to the practice in many other countries and to views now generally held by those who can speak with authority on the education of young children. Cyril Burt laid it down many years ago that 'there should be little or no formal instruction before the age of six at the very earliest'. The experience of many New Zealand infant mistresses points in the same direction. An analysis of the replies to a questionnaire distributed by the Council in 1936 shows that the opinion was fairly general that the demands of the first-year infant rooms programme were beyond the powers of the normal five-year-olds. Even if an early beginning with form work resulted in a substantial gain in measurable scholastic achievement, this might be heavily outweighed by its effects on the child's physical well-being, emotional development and general intellectual vitality. (1940, p. 25)

Examination of the syllabuses dealing with work in the infant departments of schools in New Zealand today, indicates that although much of the former infant programmes is retained, there is full scope for free play, free talk and constructive and social activities as well as provision for organized pre-reading and pre-number training for the five-year-old children.

Although education authorities in South Africa have set a definite minimum age of entry into school, there appears to be a growing interest in the question of readiness. The Transvaal Education Department (1958) reports present research into the question of school readiness and the educability of five-year-old children. The National Bureau for Educational Research in the Orange Free State has been conducting research with a view to determining the possibility of measuring school readiness in individual cases. It has drawn up a test and are taking preliminary steps to standardize it. A Committee of the Department of Public Education for the Cape of Good Hope in 1956

investigated the question of the age of readiness of children for formal instruction and came to the following conclusions:

- a. A child becomes ready for formal instruction at the mental age of 6 years, i.e. the average child reaches that stage at the chronological age of 6 years.
- b. Many children are ready for formal instruction at an earlier age than 6 years, but on the other hand, many have not yet reached a state of readiness for formal instruction at that age.
- c. The committee emphasized that all pupils admitted should be prepared for formal instruction in their first year of schooling and that in the light of (b), pupils in their first year should be grouped according to their state of readiness for formal instruction.

Many other studies dealing with readiness and optimum mental age for reading instruction, undertaken as Master's theses, have been started since 1953 in the Universities of Natal and Pretoria.

This emerging concern with readiness for learning is reflected in the syllabus issued by the Natal Education Department (1955). Suggestions for the guidance of teachers of infant schools give an indication of the type of program which is considered suitable for beginners. The following are excerpts from that publication:

The school admission age makes it possible for many children to come to school soon after their 5th birthday. The majority of children only reach maturity for the purpose of receiving formal teaching in the 3 R's at the age of six. To bridge the gap of twelve, six or even two months, the teacher should be very careful not to discourage the child's immature efforts, but should encourage him to think well of his own work, and not look for any quick results.

The Syllabus deals with two years only, the normal time required for the work. As pointed out, however, many pupils are not ready to be introduced to school subjects and lessons should not be forced upon them. It is not uncommon for pupils, who started school at the age of 5 or $5\frac{1}{2}$ to need two years for Class i.¹

¹The first two classes of the Infant Schools in Natal are designated Class i and Class ii.

Reading is the translation of symbols into words. Obviously, then, it is essential to understand words and to be able to use them freely before any attempt is made to teach the symbols. Many children have not learnt to express themselves well by the time they come to school. Furthermore they have not felt the need or the desire to study printed letters. It would be foolish to attempt the formal teaching of reading before cultivating reading readiness in the pupils. (1955, pp. 4, 14)

In Canada and the United States where convenience rather than research has set the entrance age at approximately six, tradition has made Grade I the grade in which all children begin the task of learning to read. This tradition was the outcome of an earlier and simpler period of living when the home taught the child most of what he needed to know about securing a living for himself and his family, and the task of the school was to teach what the home had not the time or the ability to teach - the reading, writing and number skills. Reading, because of its importance as a tool to secure knowledge and to learn about social and religious responsibilities, became the focal point of the pioneer curriculum. Standards of accomplishment, grade placement of materials and criteria for promotion all dealt mainly with reading.

When objective measurement of mental ability and academic achievement became general, it was discovered that the first grade program was too difficult for nearly 50 per cent of the six-year-old children. From 1930 on, the controversy over the necessary mental age to begin reading gained momentum. Otto (1950) states that:

Studies showed that a mental age of 6 or 6.5 was essential for success in first grade reading. Two important questions were then asked. Should children be kept out of the first grade until they were mature enough to cope with the first-grade curriculum? Should the first grade program be modified? The most common initial method of meeting the problem was not a modification of the curriculum but a change in admission practices. Many school systems pondered and others

adopted the policy of admitting pupils to Grade I on the basis of mental age; others established a "pre-first" grade or a "junior first grade" in which immature pupils were classified until they were ready for the work of the first grade. (1950, p. 370)

At the same time, much of the research centred on reading readiness and resulted in some modification of the methods and materials employed in teaching reading especially in the first grade. A great many new reading series with carefully controlled vocabularies were published. Each series included readiness materials and pre-primers to precede the usual first grade books; teachers' manuals, which accompanied the readers, stressed the importance of success in the initial experiences in reading. Even with these adjustments some children still found the learning task a difficult one.

In general, children are entering school earlier than ever before in this country but, in spite of the increased knowledge of child development, of the complexities of the learning process and of the influences of environment and pre-school training, this knowledge has not resulted in the establishment of special programs for young children as part of the regular school system. In the United States, where much of the research has been done, Imhoff (1958) says that, although the concept of the value of kindergartens is accepted, such education lacks state support in two-thirds of the individual states. She adds:

. . . in some situations the cost of providing an extra year or two of guided learning experiences is given more consideration than the deep and far-reaching returns of such a program to the child and his parents and eventually to society. (1958, p. 102)

A similar situation was found by Olsen (1955) to exist in

Alberta where the provision of publicly supported kindergartens is dependent upon the available school space, the size of the statutory school-age population and the teacher supply. Pre-school institutions are woefully inadequate in number, quality and articulation with the established school system.

This lack of educational opportunity for young children results in the constant pressure from parents to have the age of admission to the first grade lowered. At the same time it is expected that the school will teach all children to read as soon as they are enrolled in grade one and that all children will achieve a high standard of efficiency. In this they have the support of many laymen and school people. The popularity of such books as Neatby's "So Little For the Mind" and Flesch's "Why Johnny Can't Read" is convincing proof of the public criticism of North America's schools and any attempt to adjust school programs to meet the individual differences which exist in a group of young children. The number of do-it-yourself devices and get-reading-quick schemes which are being sold to anxious parents also reflects the current interest in reading achievement.

Whether it is this attitude of the public or the apparent reluctance of school systems to establish suitable programs for those children who would benefit from experiences other than formal instruction outside the home, has not been assessed, but the result has been elaborate screening programs or definite minimum chronological entrance ages. By these means it is possible to keep the children who may not be able to succeed with the present first grade programs out of the

schools.

Don C. Rogers, Associate Superintendent in Charge of Administration and Research for the Chicago Public Schools (1955) says in defence of their admission practices which permit no exceptions:

A parent who requests admission of his child to kindergarten or the first grade before the official date is not serving the best interests of his own child. If admitted under-age a child is competing with more mature pupils throughout his entire educational career. In fact, it would probably be to his advantage to be slightly older than the others of his group; he would more likely develop leadership qualities.

It is said by psychologists that children are occasionally frustrated by parents who are constantly pressing them for achievement faster than is warranted. Educators agree quite generally, that the average child should be six and one-half years of age to be ready for systematic reading instruction. If a child enters kindergarten under five years of age he is apt to be too immature when he gets to the first grade a year later, and frequently is retained for three semesters in first grade, until he has matured sufficiently to successfully carry the regular school work.

If an exception were made and an under-age child admitted, it is almost certain that neighbors, who watch these matters "like a hawk", would demand that an exception be made for their children, too, else school officials would be charged with favoritism.

To conform to sound educational and administrative reasons, and to avoid tremendous pressures which would be exerted if exceptions were made, all children are held to the same starting dates for kindergarten and for first grade.

The problem of admission policies is by no means resolved in the United States. The Associate Executive Secretary of the Metropolitan School Study Council in New York, Bernard H. McKenna (1958) writes:

Research that we are familiar with does not provide any objective answers to the problem of optimum school entrance age. I think probably the reason is that this question raises some others that are much more fundamental. Among those are -- do we wish to look at the educational experience of children in the narrow terms of when a child is ready to read, or in the much more carefully considered light of what kinds of group experiences should a child have at various ages? I prefer to look at it in the latter light.

In this light, there is a good deal of evidence that most children can benefit tremendously by some organized experience outside the home after age three. This, of course, brings the nursery school idea into the picture and school people begin to be concerned about what the scope of the school's job is and, particularly, about where the money is going to come from to do all these things.

But, there's another way to look at this, too. Children who have organized experiences outside the home at a very early age (let's say, three years) have greater chances of being well adjusted when they enter first grade, as they proceed on through school, and as adults. If there were some way to assess the cost of rehabilitating people who are socially and emotionally unadjusted, and of those who have had to be institutionalized, the cost of extending the entrance age downward would not seem so great.

I guess I haven't answered your question very well, but my strong feeling is that if we are going to change school entrance age, it ought to be lowered instead of raised, with a good deal of thought given to the kinds of first experiences a child needs outside the home. I fear that in several states of the United States, we are moving in the opposite direction. Lay people and school people are using the argument that children don't learn to read until six or seven to rationalize not having to increase taxes for more classroom. . . .

Robert Anderson (1958) who feels that kindergarten experience should be a part of every child's education and that it has a direct bearing on the optimal entrance age into Grade I, writes:

I am one of the many who feel that lower age requirements for admission to grade one are not desirable, and my opinion based upon both experience and examination of the literature is that youngsters ought to be six years old prior to the September in which they enroll for the first grade. One of the greatest weaknesses of the "traditional" school and even of the present arrangements is that children are often required to perform tasks which are beyond their developmental level in the early primary years, the result being poor attitudes toward school and even learning disabilities which carry on through later years. I am by no means saying that children should not be given fairly rigorous school experiences, even in the beginning, but I am calling for more realistic correlation of developmental ages and required tasks.

W. A. Brownell, Dean of the School of Education, University of California, disagrees. He says:

It is my opinion the entrance age is a matter of tradition and

the first grade program has been tailored accordingly. With a different program, I am sure that younger children could safely be allowed to start their schooling.

It can be expected that experimental studies now in progress will have an influence on admission policies and first grade programs in the coming years.

SUMMARY

There are three main types of practices governing the admission of children to the first grade.

First, there is one which admits all children at the age of five and provides a program which allows them to grow and develop at their own rate. A rich and stimulating environment plus planned educational activities guides them toward the acquisition of the attitudes and skills needed for formal instruction.

Second, there is one which sets a higher minimum admission age of six years but permits exceptions for younger children who can demonstrate, through their performance on various psychological tests and by assessment of their physical development, that their probability of success is adequate for beginning the formal instruction required by the first grade programs.

A third policy sets an arbitrary minimum chronological entrance age and allows no deviation from the statutory laws which govern school admission.

Despite the differences in admission practices, there is a general trend in the educational philosophy of all countries in this

review, to accept the experimental evidence that the introduction of formal instruction too early is a detriment to satisfactory achievement in the many aspects of child development. The mental age of six is most often mentioned as being the time at which most children begin to profit from systematic formal instruction in reading, writing and arithmetic. School practices are affected by this point of view but modifications are dependent upon society's expectations of school progress in each country.

CHAPTER IV

THE EFFECT OF ENTRANCE AGE ON ACADEMIC ACHIEVEMENT AND PROGRESS

Studies of the effect of entrance age on academic achievement and progress of children during their years in school were undertaken in New Zealand and in the Province of Quebec at approximately the same time. The New Zealand study dealt with children who had completed the work of the Primary School. The Quebec study included the entire school program of twelve years. Neither study attempted to equate mental age with achievement and progress. Chronological age was the variable in each case. Through a comparison of the scholastic attainments and the accelerations and retardations of the early and late entrants, the investigators sought to discover the optimal age for entry into school.

I. THE ACADEMIC ATTAINMENT OF LATE ENTRANTS TO PRIMARY SCHOOL IN NEW ZEALAND

The minimum age for compulsory enrolment at school in New Zealand is seven years. In practice, the great majority of parents enrol their children immediately they turn five years of age. Parents who keep their children at home beyond the permissive age of entry do so for various reasons: the child may be suffering from ill-health or be mentally retarded; he may live too far from the school; or his parents may consider that six or even seven is early enough to start formal school work.

In 1932, the age of entrance to the public primary schools was raised from five to six years. Shortly afterwards, a concession was made to parents allowing children who turned six at any time during a term or the vacation following it, to be enrolled at the beginning of that term.

In 1935, as a result of a general public outcry against this legislation, the New Zealand Council for Educational Research undertook an investigation into the effects of late entry into school. The Council's Staff examined the progress cards of a representative sample of the children leaving the Primary Schools in 1934. An analysis was made of the data obtained from 4,111 cards. Comparisons were made between the academic progress of the early and late entrants.

The first significant fact to emerge was that the later a child entered school, the more likely it was that he would leave without completing the Standard VI course. The late entrant caught up a certain amount of time in the infant department and remained at school beyond the age at which the normal five-year-old entrant left, but of those entering at six, only about two out of three or 68 per cent obtained the Standard VI Proficiency or Competency Certificate. The percentage dropped to 50 for those entering at seven years of age.

The fact that the time the late entrants made up was in the infant department and not in the standard classes was considered. It might have been expected that after their initial spurt, they would have continued to make relatively rapid progress. Evidence provided the explanation that the late entry groups were heavily weighted with children who were less able to succeed at school. Because of the rea-

sons for voluntary late entrance, these groups were actually selected groups.

The next year, the restrictive legislation was repealed and from the beginning of the 1936 term, children could again be admitted at the age of five. The readmission of the five-year-olds provided investigators of the effects of late entrance with two groups comparable in all respects except age. The scholastic progress of the five-year-old could be compared with that of the involuntary late entrants who were beginning school at exactly the same time.

The children tested constituted a sample of those entering school for the first time at the beginning of the 1935 school year. The testing was confined to the larger schools but forty-two schools had to be included in the survey to secure the required number of children. Thirteen schools in Auckland, twelve in Wellington, nine in Christchurch and eight in Dunedin participated. The testing was carried out by groups of Training College students who had been intensively trained in the administration of the tests.

The children tested were arranged in seven entrance age groups. The distribution is shown in Table V.

None of the children in groups II, III and IV could have been sent to school in the previous year but this was not true of the majority of group V nor of all the children in groups VI and VII. Therefore nearly all the involuntary late entrants were in groups II, III and IV. Some of these children might have been kept at home until they actually began school even if there had been no exclusion of the five year olds.

TABLE V
DISTRIBUTION OF CHILDREN ACCORDING TO AGE AT ENTRANCE
(1940, p. 14)

Group	Age at Entry	Number of Cases
I	5.0 - 5.2	434
II	5.3 - 5.5	437
III	5.6 - 5.8	440
IV	5.9 - 5.11	468
V	6.0 - 6.2	128
VI	6.3 - 6.5	38
VII	6.6 - 6.8	37
Total		1982

It had been decided that the most important comparison of scholastic achievement was to be made between Group I and Group IV, so a separation of the voluntary and involuntary late entrants was attempted. The parents of the 468 children in Group IV were asked whether or not they would have sent their children to school in 1935 if they had been allowed to do so. According to the testimony given, 414 were involuntary late entrants; the remaining 54 were voluntary late entrants or children of parents who gave a doubtful answer or did not reply to the circular sent to them. There was no attempt to make a similar distinction in Groups II and III since it seemed unlikely that voluntary late entry would be more than very slightly associated with

superior or inferior scholastic ability in these two groups (New Zealand Council for Educational Research, 1940, pp. 9-12).

All groups were tested but the results given are for Groups I to IV only. The mean difference in chronological age between the youngest and the oldest group was almost exactly nine months. A study was made of their relative achievement in school subjects as measured by standardized tests of scholastic attainment. It was argued that if the older group progressed more rapidly, their superiority, in the absence of any other satisfactory explanation, would have to be attributed to their greater maturity. At the time of testing, the mean age of the youngest children was 8 years, $7\frac{1}{2}$ months and all had spent a little more than three years and two terms at school. Eight per cent were in Standard III, 60 per cent were in Standard II, 29 per cent were in Standard I and less than 3 per cent were in the Infant Department.

The tests used were as follows:

1. Spelling - Burt's Graded Vocabulary Test;
2. Reading Vocabulary - Burt's Graded Reading Vocabulary Test;
3. Reading Comprehension - Hildreth's Primary Reading Test for Grades 1, 2 and 3, Paragraph Reading;
4. Composition - Burt's Test;
5. Mental Arithmetic - Burt's Test;
6. Mechanical Arithmetic - A.C.E.R. Arithmetic Tests, Form A (Australian Council for Educational Research).

For each of the four groups, boys and girls separately, the mean, median, and upper and lower quartile scores were calculated and converted into attainment ages. There was fairly close agreement between the

results for boys and girls. The mean and the median attainment ages for all children were obtained by averaging those for both sexes. The median attainment ages for the combined group are given in years in Table VI.

TABLE VI
MEDIAN ATTAINMENT AGES OF GROUPS I TO IV
(1940, pp. 17, 18)

	Group I 434 cases	Group II 437 cases	Group III 443 cases	Group IV 415 cases
	Years	Years	Years	Years
Chronological Age	8.74	9.00	9.24	9.49
Spelling	9.20	9.33	9.50	9.60
Reading Vocabulary	9.21	9.40	9.47	9.75
Reading Comprehension	8.90	9.10	9.10	9.16
Composition	8.46	8.63	8.81	8.88
Mental Arithmetic	7.96	8.21	8.28	8.43
Mechanical Arithmetic	7.53	7.82	7.90	8.06

The test results are shown graphically in Figure I.

All six curves for scholastic achievement have a decided rising tendency which indicates that the scholastic achievement of the late entrants is superior to that of the five-year-old entrants who have the same amount of schooling.

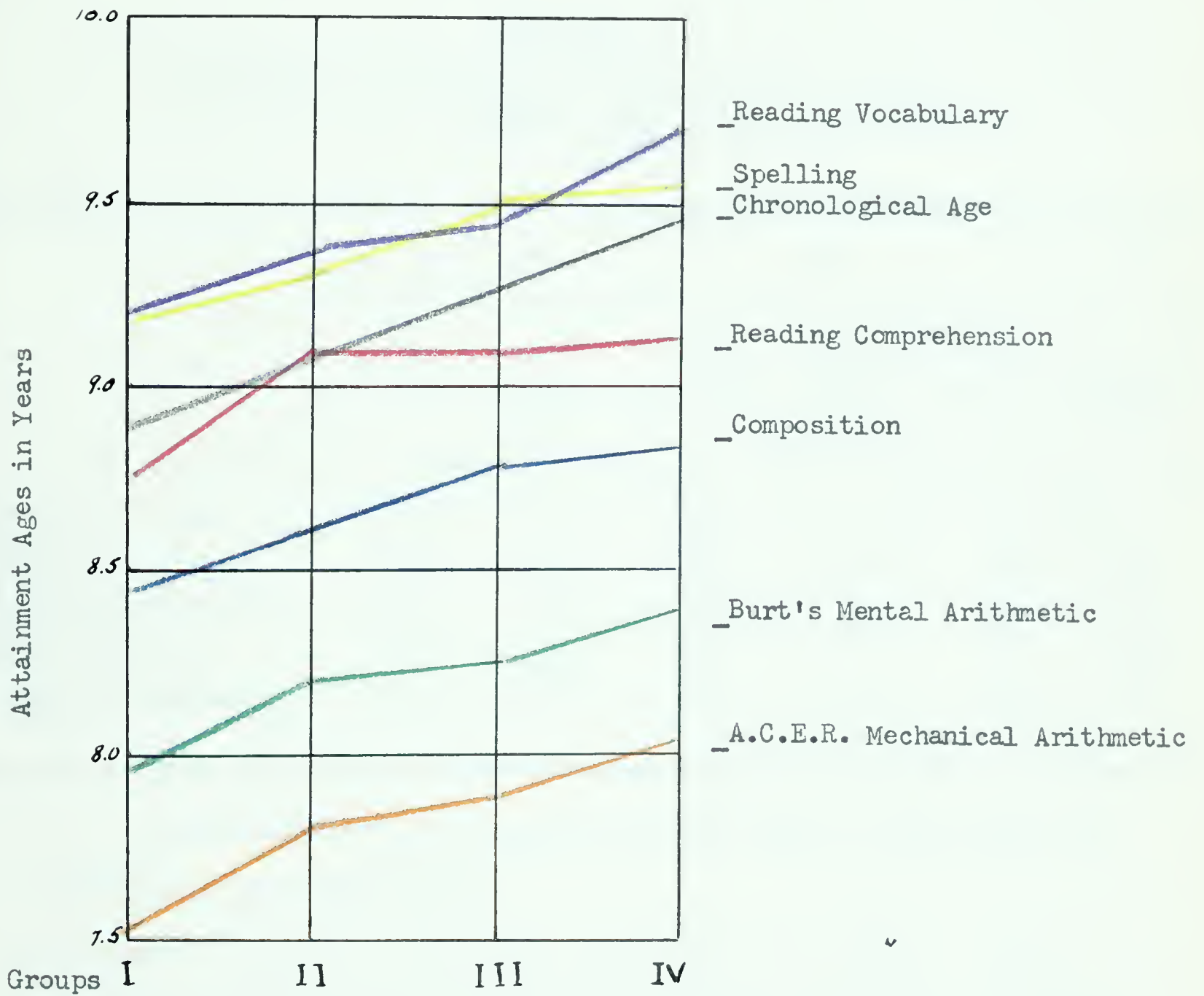


FIGURE I

MEDIAN ATTAINMENT AGES OF EARLY AND LATE ENTRANTS
(1940, p. 18)

The extent of the attainment age recovered¹ in the various subjects is shown in Table VII, in which the differences in the attainment ages of Groups I and II, I and III and I and IV are given for comparison with the chronological age differences.

TABLE VII

DIFFERENCES IN ATTAINMENT OF EARLY AND LATE ENTRANTS
(1940, p. 19)

	I - II		I - III		I - IV	
	diff. (in yrs.)	% of recov- ery	diff. (in yrs.)	% of recov- ery	diff. (in yrs.)	% of recov- ery
Chronological Age	.26		.50		.75	
Spelling	.13	50	.30	60	.40	53
Reading Vocabulary	.19	73	.25	52	.54	72
Reading Comprehension	.20	77	.20	40	.26	35
Composition	.17	65	.35	70	.42	56
Mental Arithmetic	.25	96	.32	64	.47	63
Mechanical Arithmetic	.29	111	.37	74	.53	71

Several apparent discrepancies in the results of the tests were explained by the investigators:

1. Group II showed an unexpectedly high level of recovery. Administration of an intelligence test to the children of that group revealed that the boys were unusually intelligent for their age and the girls

¹The achievement of Group I was taken as typical of five-year-old entrants. Recovery is the term used to denote the progress of the late entrants toward normal attainment which was lost through late entry.

were below average but the combined figures for boys and girls showed that the faulty sampling affected the results.

2. The Group IV recovery in Reading Vocabulary is high in relation to the Group IV recovery in other language tests, and to the Group III recovery in Reading Vocabulary. The percentage for Group II can not be relied upon because of the reason given above. The test in Reading Vocabulary was thought to be the least objective of all the tests administered so errors in measurement could account for the high recovery level of Group IV.

3. In the Reading Comprehension results, the small recovery made by Groups III and IV was attributed to the nature of the test. It gave a maximum reading age of 10 years, 5 months. This ceiling effect would not give the more mature children in Groups III and IV the opportunity to score as high as they might have if a test with a wider range had been used.

To check this supposition, the investigators compared the scores of the lower half of each group. The lower quartile attainment ages were:

Group I - 8.03

Group II - 8.33

Group III- 8.34; % of recovery - 62

Group IV - 8.48; % of recovery - 60

These percentages seem to be more in line with what the other results would lead one to expect.

4. The percentages in mechanical arithmetic are all very high but are the result of the necessity of using Australian norms as there were no

New Zealand norms for the test.

These considerations suggested that the amount of recovery in all subjects would be about the same - between 50 and 60 per cent in reading, spelling and composition, and about 60 per cent in arithmetic. Therefore, it seemed that one could conclude that in the academic school subjects, the involuntary late entrant who begins at any time up to the age of six years in New Zealand, catches up more than half of the time lost through late entry before the end of his fourth year in school.

The study of the standard placement of the children showed that the late entrants progressed through the school classes at a relatively rapid rate. The percentage distribution of the children of the four groups in the various classes is given in Table VIII.

TABLE VIII
DISTRIBUTION OF THE CHILDREN OF THE FOUR
GROUPS SHOWN IN PERCENTAGES
(1940, p. 21)

Group	Primary 3 or 4	Standard I	Standard II	Standard III
I (5.0 - 5.2 entrants)	4	39	52	5
II (5.3 - 5.5 entrants)	4	29	61	6
III (5.6 - 5.8 entrants)	2	27	63	8
IV (5.9 - 5.11 entrants)	1	23	63	13

The percentage distribution of the children is graphed in Figure

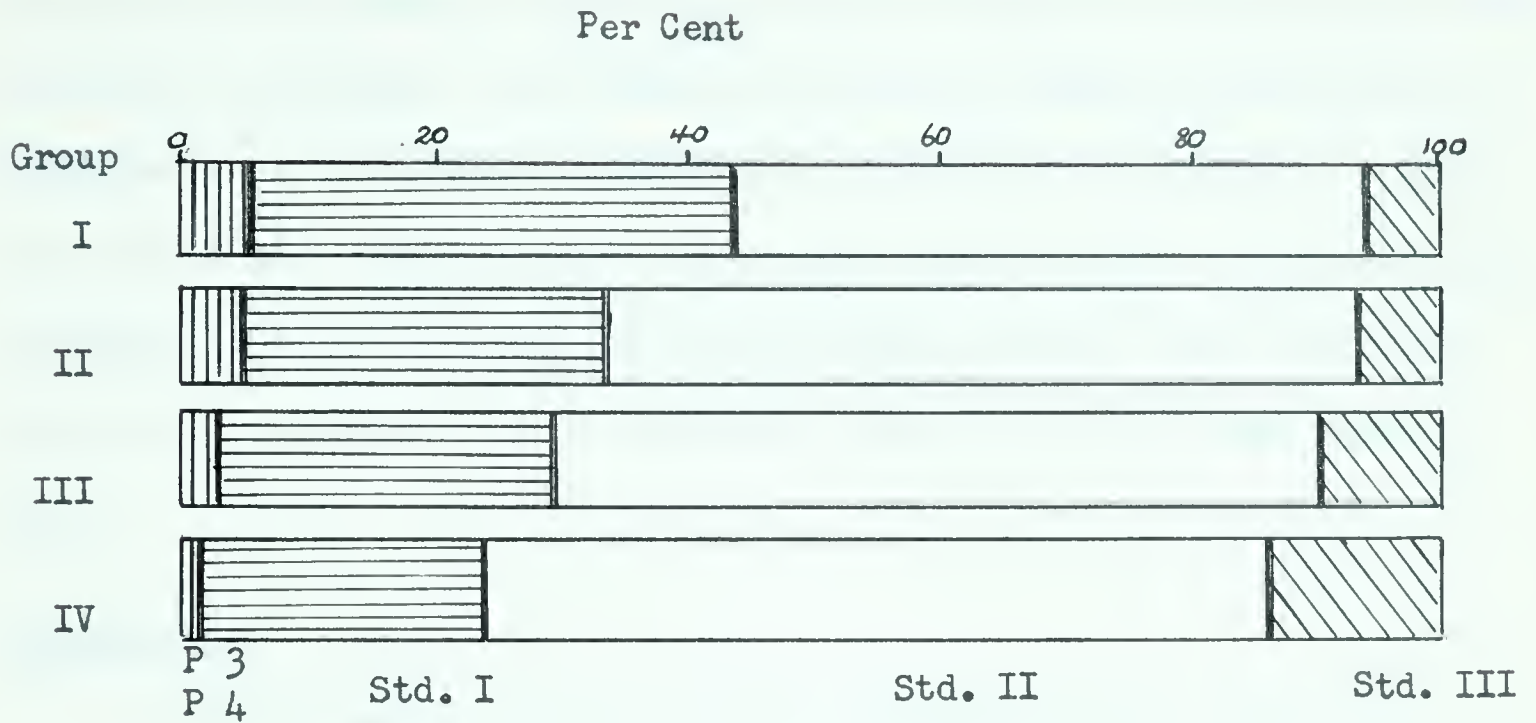


FIGURE 2

PERCENTAGES OF EARLY AND LATE ENTRANTS IN INFANTS, STANDARD I,
STANDARD II AND STANDARD III AFTER THREE YEARS
AND TWO TERMS AT SCHOOL
(1940, p. 21)

Only 24 per cent of Group IV children as compared with 43 per cent of Group I children had spent three years in the infant classes or failed Standard I; and 13 per cent of Group IV had reached Standard III while only 5 per cent of Group I had reached that Standard. Group II had recovered 1.1 of the 3 months originally lost through late entry; Group III had recovered 2.5 of the 6 months lost and Group IV had recovered 3.4 of the 9 months lost. This was a recovery of approximately two-fifths for each group. The recovery made by the voluntary late entrants in the 1935 study was about one-quarter of the time lost (New Zealand Council of Educational Research, p. 6).

This data referred only to the first half of the children's

school life but suggested a possibility that some of the voluntary late entrants were capable of catching up all the time lost before they reached the age of fourteen. The brighter of these late entrants would have no difficulty in completing Standard VI by the school leaving age. However, the duller ones would be more likely than five-year-old entrants of equal capacity to drop out before finishing primary school because many parents were reluctant to keep children in school past the legal leaving age.

Conclusions

The information obtained in the investigation was limited in scope but the findings have a bearing on the important question of the age at which formal work in academic subjects should normally begin.

1. The older entrants made higher scores on the achievement tests and progressed more rapidly through the classes.
2. The findings lead to the conclusion that the scholastic gain by entry at five is not as great as had been supposed. In fact, in some cases, there was no gain.
3. The study suggested that the problem of late entrants leaving school before the completion of Standard VI was one which would have to be solved by extending the school leaving age to fifteen. Entry into school at five and the beginning of formal instruction for these less able children was not the answer since they were not ready to profit by it.
4. The investigators were of the opinion that although the data assembled suggested the age at which children should begin formal work,

it did not answer the question at what age children should enter school. They felt that had the late entrants spent the year from five to six in an informal programme of pre-school activities, there would have been more gain in their achievement over the five-year-old entrants.

II. STUDY OF THE AGE OF ADMISSION TO GRADE I IN THE PROVINCE OF QUEBEC

The object of this survey, which was undertaken at the request of the Quebec educational authorities, was to furnish objective data to serve as a scientific basis for legislation and public information concerning the admission of children to Grade I of the elementary course in the Province of Quebec.

Data were collected concerning the age of admission, the physical status and the educational progress of 585,566 pupils which was nearly all the pupils enrolled in the twelve regular school grades at the time of the survey. The study took into account the different academic systems: French-Catholic classes, English-Protestant classes and English-Catholic classes. It also took into consideration the sex of the children and the different educational areas: Montreal, Quebec, smaller cities, towns, villages and the rural areas for French classes and Montreal and rural areas for English classes.

The enrolment ages indicated in the tables are the ages of the children on the 31st of January, according to the registration form used at that time. The ages of the children on admission would be:

4 years: Between 3 years, 8 months and 4 years, 7 months;

- 5 years: Between 4 years, 8 months and 5 years, 7 months;
 6 years: Between 5 years, 8 months and 6 years, 7 months;
 7 years: Between 6 years, 8 months and 7 years, 7 months;
 8 years: Between 7 years, 8 months and 8 years, 7 months;
 9 years: Between 8 years, 8 months and 9 years, 7 months;
 10 years: Between 9 years, 8 months and 10 years, 7 months.

The tables and the information from the survey have been selected and adapted for the purpose and scope of this report.

The Survey of Accelerated Progress

TABLE IX

RELATION OF ACCELERATION AND THE AGE OF ADMISSION
 FOR EACH YEAR OF THE SURVEY, EXPRESSED
 IN PERCENTAGES (585,566 PUPILS)

Age When Ad- mit- ted	Year of Admission										
	1941	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931
4	--	--	--	--	--	--	--	--	--	--	--
5	--	.47	.81	.84	.68	.71	.33	.22	.31	.73	.43
6	.29	1.26	1.87	2.66	2.06	1.95	1.03	1.79	1.16	1.53	1.11
7	.98	2.75	5.10	6.95	5.42	3.90	2.78	3.19	2.60	3.32	3.15
8	1.80	5.28	9.38	12.19	8.83	5.92	3.88	4.75	5.84	5.35	4.70
9	3.42	7.25	10.34	12.16	9.39	5.34	5.66	8.52	6.35	9.06	17.40
10	6.58	8.20	9.21	8.47	6.39	4.42	10.37	22.95	13.80	21.43	

Accelerated progress, as used in this report, refers to the practice of promoting children more than one grade per year. This table shows that there were no accelerations for the children admitted at the

age of four. Less than one per cent of the children admitted at the age of five made accelerated progress.

The proportion of children who show accelerated progress always increases for the pupils admitted at 6, 7, 8 and 9 years of age. This would seem to indicate that there is a positive relationship between mental and physical maturity of the child and the possibility of accelerated progress. This relationship is evident, not only in the first grade, but during the whole school course.

The Survey of Retarded Progress

TABLE X

PERCENTAGE OF RETARDED PROGRESS IN RELATION TO THE AGE
OF ADMISSION FOR EACH YEAR OF THE
SURVEY (585,566 PUPILS)

Age When Ad- mit- ted	Year of Admission									
	1940	1939	1938	1937	1936	1935	1934	1933	1932	1931
4	80.85	70.83	87.10	90.63	96.35	100.00	99.99	97.45	92.72	100.00
5	40.31	53.85	63.29	72.01	78.70	83.33	89.64	89.75	88.84	87.61
6	23.58	33.22	45.99	56.66	62.68	68.60	76.35	74.53	76.60	66.66
7	22.55	32.03	44.17	57.37	64.17	73.29	78.86	77.08	77.29	69.78
8	30.71	36.55	47.88	57.77	68.49	73.93	76.96	67.95	67.63	69.12
9	38.24	37.66	50.74	56.17	65.58	67.58	67.96	66.19	45.39	56.53
10	50.26	50.33	58.59	63.92	70.03	65.86	52.46	39.93	42.87	

Retarded progress, in this instance, merely means that the pupils were not promoted to the next grade at the end of the year. There was no attempt to correlate ability and achievement. As shown in Table X,

the percentage of failures is much higher, almost a third more, for the children admitted to grade one at the age of four and five years.

Further examination of the data reveals that the lower percentage of retarded progress always corresponds to the admission ages of six and seven years except after six years attendance at school. It would seem that after these six years, which would bring the children admitted at the ages of 8, 9 and 10 years to the school leaving age, the group is relieved of a large proportion of the mental and physical deficiencies who register at these ages. Table XI furnishes evidence for this assumption.

TABLE XI

DISTRIBUTION OF THE BEGINNERS AGED SEVEN AND OVER IN 1941 ACCORDING TO THE REASONS FOR NOT BEGINNING SCHOOL EARLIER

Alleged Reasons	Age at the Time of Admission					
	7	8	9	10	11	12
Private Lessons	1.31	2.55	1.77	4.49	2.44	2.33
Sickness	6.31	15.77	20.14	11.24	14.63	13.95
Physical Defects	2.07	6.78	8.83	14.61	12.20	6.98
Distance from School	7.04	16.51	15.55	26.96	29.27	32.56
Parental Carelessness	11.55	23.36	28.62	28.09	31.71	25.58
Administration	1.38	2.01	6.01	1.12	2.44	4.65
Other Causes	.69	1.35	2.47	3.37	2.44	2.33
No Response	69.63	31.68	16.61	10.11	4.88	11.63

There can be noted in the older age groups a large percentage of the children suffering before entrance and perhaps later from physical defects and poor health.

Parental carelessness given as a reason for late entry indicates a family environment, or else a type of mentality or character which countenances laziness, dislike of study, poor discipline, lack of effort and indifference to education. A large number of the pupils who are older at the time of enrolment are under the influence of these conditions and their chance of progress is no better than that of the physical and mental deficients.

The percentage of those who repeat Grade I more than once corroborates the assertion that the 8, 9 and 10 year old admission groups contain a larger proportion of the physical and mental deficients, than the 6 and 7 year old groups. The data are shown in Table XII.

TABLE XII

DISTRIBUTION OF THE BEGINNERS AGES SEVEN AND OVER IN 1941
ACCORDING TO THE REASONS FOR NOT BEGINNING SCHOOL
EARLIER EXPRESSED IN PERCENTAGE

	Age of Admission to Grade I						
	4	5	6	7	8	9	10
Second Time	40.91	27.92	17.10	19.22	27.34	29.52	31.26
Third Time	--	3.03	1.59	3.20	9.18	17.06	15.01
Total	40.91	30.95	18.69	22.42	36.52	46.58	46.27

Similar evidence is provided in Table XIII which shows the percentage of children who repeat Grade I and the reasons for their failure to be promoted.

TABLE XIII

DISTRIBUTION OF THE REPEATERS IN GRADE I ACCORDING TO THE
AGE OF ADMISSION TO SCHOOL AND THE CAUSES OF
FAILURE EXPRESSED IN PERCENTAGE

Cause of Failure	Age of Admission to School					
	5	6	7	8	9	10
Physical Defects	8.11	7.82	9.81	13.66	22.45	17.86
Faulty Class Work	26.49	21.04	17.78	13.66	12.24	7.14
Intellectual Ability	35.68	49.07	49.63	46.83	36.73	64.29

The high percentage of older pupils repeating their first grade because of physical defects supports the fact that groups admitted at 8, 9 and 10 years of age contain a larger proportion of children who are physically deficient.

The cause to which teachers attributed the majority of failures among children who attend regularly was lack of intellectual ability. The proportion is obviously the same among the children admitted at 6, 7 and 8 years of age, that is, 46 - 49 per cent. Children admitted at 5 years of age and failing for the same reason, form a small percentage as compared with the other age groups. This would suggest a normal distribution of intelligence for the group admitted at 5 years of age. However, as this same group had the largest percentage who failed because of poor class work, it can be concluded that, for the 5 year old children, a less advanced maturity reacts unfavorably on their success in Grade I.

This tendency appears to continue throughout the whole of their school life. Children admitted to school at four or five years of age repeat more grades than children admitted at six or over. This is true particularly of the first four grades.

TABLE XIV

DISTRIBUTION OF THE PUPILS OF GRADE VI WHO HAVE REPEATED,
ACCORDING TO THE GRADES REPEATED AND THE AGE OF
ADMISSION, EXPRESSED IN PERCENTAGE

Age When Admit- ted	Grades Repeated						
	None	I	II	III	IV	V	VI
4	10.61	39.39	34.85	40.91	28.79	33.33	21.21
5	25.78	17.19	20.58	22.64	21.32	24.88	19.42
6	41.03	8.58	13.13	14.71	15.59	19.73	16.73
7	38.53	5.97	10.66	13.98	14.15	21.46	20.25
8	38.67	3.57	7.69	11.77	13.87	21.78	23.63
9	48.67	1.09	4.59	7.00	10.39	13.89	25.72
10	54.55	1.14	1.70	6.25	6.82	16.48	20.45

These figures show that the higher the average age of admission, the smaller is the proportion of repeaters in the first five grades. There is a sharp decrease in the percentage of repeaters in each grade between the children admitted at five and those admitted at six years of age. At the fourth grade, the differences become less marked. In the fifth and sixth grades, the differences almost disappear. Apparently, most of the children at this age have attained the mental development which the school programme requires and the factors which

have held them back have been eliminated. This conclusion is supported by the data provided in Table XV.

TABLE XV

AVERAGE NUMBER OF YEARS TAKEN BY THE PUPILS IN A GRADE
TO COMPLETE THIS GRADE, DISTRIBUTED ACCORDING
TO THE AGE WHEN FIRST ADMITTED

Age When Admit- ted	Grade Completed											
	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII
4	1.54	3.87	5.25	6.38	7.23	8.51	9.55	10.50	10.89	11.75	13.00	13.33
5	1.42	3.03	4.22	5.37	6.46	7.45	8.36	9.16	10.09	10.90	11.68	12.74
6	1.23	2.46	3.67	4.82	5.91	6.91	7.81	8.81	9.52	10.37	11.32	12.40
7	1.29	2.50	3.72	4.89	5.88	6.82	7.71	8.32	9.43	10.45	11.14	12.05
8	1.51	2.83	3.96	4.97	5.92	6.66	7.49	8.31	9.14	10.09	10.62	11.67
9	1.72	3.07	4.06	4.96	5.64	6.37	7.20	7.89	8.81	9.63	10.33	11.00
10	2.33	3.45	4.04	4.74	5.55	6.12	7.00	7.45	8.21	9.00	9.00	9.67

On the average, children who have been admitted to school at the age of four or five years, have taken longer than other pupils to complete each grade. The average number of years decreases gradually for each of the ages 6, 7, 8, 9 and 10 years with the exception of the first five grades. During this period, the 8, 9 and 10 years admission groups are burdened with a certain number of children of low mental and physical development which has been explained previously.

Although, according to these statistics, it would appear that there may be financial and educational gains from late admission it must be noted that these late entrants reach the end of the compulsory

education period between grades three and six. The number who would voluntarily remain in school past that age would be limited to those children of superior ability and interest. A large proportion of the children would leave school inadequately prepared to meet the requirements of society. It, therefore, cannot be advocated that admission to school be postponed until 8, 9 and 10 years of age for all children. However, in a general way and within limits, it may be concluded that the more physical and mental maturity that a child possesses at the time of enrolment in grade one, the more assured is his progress and achievement in school.

Survey of the Grade I Classes

In the Protestant classes in Montreal, the pupils of Grade I who were first admitted at six years of age made better progress than any other group. This was attributed in part to the fact that more than fifty per cent of these children had received special pre-school preparation in kindergarten classes. The data gathered in the survey gave conclusive evidence of the advantage of the assessment of the physical and mental maturity of the children entering school at the age of six years or under, with a view to placing them in suitable learning situations. Some would be enrolled in the Kindergarten and some in Grade I classes according to a sound evaluation of what would be best for them at their stage of development.

Since this study was published the practice of periodically regrouping the children in Grade I according to their progress during the course of the year has been carried on. This experiment has already

proven the value of provision for individual differences. There has not been one child who has had to repeat Grade I and forty per cent of the pupils have been accelerated at the end of the second school year having been promoted from Grade II to Grade IV.

Conclusions

1. The study shows conclusively that the admission of children of five years and under to Grade I is most disadvantageous. These children repeat more grades and have fewer accelerations than any other admission age group.
2. It shows that there is a positive relationship between mental and physical maturity at the time of enrolment and accelerated progress through the elementary grades.
3. It suggests that the unrestricted admission of children of six years to Grade I is not advantageous for all children. Admission at this age should depend upon their physical and mental maturity and the nature of the provision for individual differences in the school which they will attend.
4. It indicates that delaying instruction for some children until eight years of age or over would be advantageous since under normal circumstances, they are able to make up the time lost through their late admission by relatively rapid progress through the course.
5. It points out the value of grouping children entering school according to their pre-school preparation, and of a periodic regrouping of the children during the first year and in the years following, as important factors in the progress of all pupils.

6. It suggests that attendance at kindergartens would have great advantages for many children.

SUMMARY

Although the reliability of these studies may be questioned because of their failure to control many of the variables which might have affected the results obtained, they do suggest that early entry into a formal beginning program does not result in superior academic achievement either in the first year or in the succeeding years of school attendance. They also point out that children who enter school at approximately six years of age make relatively better progress through the grades than do those children who enter at four or five years. This is especially true if all children are expected to begin formal instruction upon entry into school.

It was the opinion of the investigators of both countries that an informal, kindergarten-type program in the year preceding the regular first grade would result in even greater gains for the six-year-old children.

CHAPTER V

THE EFFECT OF THE SCHOOL PROGRAM ON READINESS FOR READING

During the decade between 1930 and 1940 there were many studies conducted to solve the problem of the optimum or necessary mental-age level at which reading could be successfully introduced. As a result, educators accepted the finding that a mental age of from six to six and one-half years was one of the significant factors of success in beginning reading. Statements to this effect were made in many professional books on reading.

Gates (1937) felt that these statements simply implied that success with typical first-grade reading programs required a stipulated mental age. He said:

The fact remains, however, that it has by no means been proven as yet that a mental age of six and a half years is a proper minimum to prescribe for learning to read by all school methods, or organizations, or all types of teaching skill and procedures. (1937, p. 497)

To prove his point he presented the data on the relations between mental age and success in learning to read in Grade I for four different groups which were taught to read by different methods and materials.

The first group was composed of seventy-eight pupils in two classes. The mental ages of the children ranged from 4 years, 5 months to 8 years, 6 months. Practically half of the members of the class had a mental age of less than six years on entry into school.

The teaching was done, under the close supervision of Miss Florence Raguse of the State Teachers College at Indiana, by teachers who were particularly competent. In addition to the usual equipment of

books, the teachers used specially prepared supplementary practice and teach-and-test materials. Larger amounts of easy reading and self-diagnostic materials were also available in these classes than was usual. The methods used were those suggested by Gates (1928) and were followed exclusively. The pupils were permitted to read widely as soon as they were able to do so.

Raguse (1931) describes the program thus:

The daily reading activities occupied ninety minutes and were divided into four periods, two in each session. The purpose of the first period in each session was to help the children to read with enjoyment the content; to comprehend the thought and sequence of the story; and to use independently, whenever possible, the word-mastery skills specified in the list of principles for teaching reading.

The purpose of the second period in reading was to develop word-mastery skills. It consisted of reading exercises designed to develop phonetic and word perception skills, and other basal techniques and activities which provided opportunities for exercising the five types of comprehension. Flash cards were sometimes used as checks to reveal the words which had not become automatized. In the fifteen minute period, much care was given to the mechanical arrangement of the materials in the exercises in order to obtain the maximum learnings. (1931, pp. 427, 428)

A month before the end of the first year in school the children's reading attainments were measured with the three Gates Primary Silent Reading Tests. The results of these tests were averaged and the data computed on three bases: (1) the percentage of pupils who achieved a reading grade score of 1.50 or higher; (2) the percentage achieving a reading grade score of 1.75 or higher; and (3) the percentage equalling or exceeding 1.95. From this data the information regarding the percentages of pupils in the group with a stipulated beginning mental age who failed to exceed a reading grade of 1.50, 1.75 and 1.95 were assembled. It is shown in Table XVI.

TABLE XVI

PERCENTAGE OF PUPILS WHO FAILED TO ACHIEVE READING GRADES OF
1.50, 1.75 and 1.95, DISTRIBUTED ACCORDING TO MENTAL AGE
(1937, p. 501)

Mental Age	Percentage of Pupils with Reading Grades		
	Below 1.50	Below 1.75	Below 1.95
5.0 or above	0	3	7
5.5 or above	0	2	2
6.0 or above	0	2	2
6.5 or above	0	0	0

Since only seven per cent of the pupils with a beginning mental age of 5.0 or higher fell below a reading grade of 1.95 and since all the seriously retarded cases fell in the group with a mental age of five years or less at the beginning of the year, Gates concluded that a mental age of 5.0 at the beginning of the year, in a program which was characterized by superior instruction, abundance of suitable, individualized materials and relatively small classes, was sufficient for learning to read satisfactorily.

The second group of forty-eight pupils was taught in a New York City School. The teachers were rated as more expert than the average. The usual equipment of books was supplemented by a considerable amount of experimental materials developed by Gates and consisted of various types of practice and seat-work, teach-and-test materials and easy reading material with a vocabulary limited to that used in the basal books. The children were not encouraged to read widely outside these

materials.

The results of the three Gates Primary Silent Reading Tests are shown in Table XVII.

TABLE XVII

NEW YORK PUPILS TAUGHT WITH SPECIALLY PREPARED MATERIALS WHO
FAILED TO ACHIEVE READING GRADES OF 1.50, 1.75 and 1.95,
DISTRIBUTED ACCORDING TO MENTAL AGE (1937, p. 503)

Mental Age	Number of Pupils	Reading Grade Below 1.50	Reading Grade Below 1.75	Reading Grade Below 1.95
7.5 - 8.0 7.0 - 7.4 6.5 - 6.9 6.0 - 6.4 5.5 - 5.9 5.0 - 5.4 4.5 - 4.9 5.5 or above 6.0 or above 6.5 or above 7.0 or above	2 3 8 9 10 8 5 32 22 13 5	Number of Pupils		
		0	0	0
		0	0	0
		0	1	1
		1	1	1
		0	1	2
		0	1	3
		1	2	3
		Percentage of Pupils		
		3	9	12
		5	9	9
		0	8	8
		0	0	0
		Correlation between Mental Age and Reading Grade .55		

The pupils in this class who began with a mental age of less than five years were not so successful as those in the first group. Of the pupils who began with a mental age of 5.5 or higher, only 3 per

cent fell below 1.50, 9 per cent fell below 1.75 and 12 per cent below 1.95. Therefore, this program seems satisfactorily adjusted to pupils with a mental age of 5.5 or higher. It represents a difficulty level about one-half year higher than that used with the first group.

A third group of forty-three pupils in one class of a rather superior urban public school were taught by a very good teacher. Table XVIII gives a summary of the test data for forty of these pupils.

TABLE XVIII

URBAN PUPILS IN A SUPERIOR PUBLIC SCHOOL TAUGHT WITHOUT A LARGE AMOUNT OF SPECIALLY PREPARED MATERIALS WHO FAILED TO ACHIEVE READING GRADES OF 1.50, 1.75 and 1.95, DISTRIBUTED ACCORDING TO MENTAL AGE
(1937, p. 504)

Mental Age	Number of Pupils	Reading Grade Below 1.50	Reading Grade Below 1.75	Reading Grade Below 1.95
		Number of Pupils		
7.5 - 8.0	1	0	0	1
7.0 - 7.4	3	0	0	0
6.5 - 6.9	7	0	1	1
6.0 - 6.4	9	1	1	2
5.5 - 5.9	9	1	2	4
5.0 - 5.4	7	1	3	5
4.5 - 4.9	4	2	3	4
		Percentage of Pupils		
5.5 or above	29	7	14	27
6.0 or above	20	5	10	20
6.5 or above	11	0	9	18
7.0 or above	4	0	0	25
Correlation between Mental Age and Reading Grade .44				

This large class was conducted with an above average amount of typical classroom reading material and equipment but did not have access to very much of the specially prepared types of supplementary teach-and-test materials which were available to the first two groups.

The critical mental age for this group was 6.0 and poor reading success appeared among the mental ages below this mental level. Of the group with mental ages of 6.0 or higher, only 5 per cent fell below a reading grade of 1.50, 10 per cent fell below 1.75 and 20 per cent below 1.95. It is reasonable to say that for pupils with a mental age of six years or higher, this program was fairly suitable, but it definitely requires a mental age a full year in advance of that used with the Raguse group.

The fourth group consisted of eighty pupils from two public school classes in a metropolitan area. The teachers of these two large classes were judged to be below the average in professional skill in comparison with others in the school system and employed mass methods, much oral instruction and little individual self-help materials. There was practically no attempt made to adjust the instruction to the individual needs of the pupils. The typical reading materials and equipment were inferior. Table XIX gives a summary of the test results for this group.

TABLE XIX

PUPILS IN METROPOLITAN SCHOOLS TAUGHT WITH INFERIOR MATERIALS
WHO FAILED TO ACHIEVE READING GRADES OF 1.50, 1.75
and 1.95, DISTRIBUTED ACCORDING TO MENTAL AGE
(1937, p. 505)

Mental Age	Number of Pupils	Reading Grade Below 1.50	Reading Grade Below 1.75	Reading Grade Below 1.95
Number of Pupils				
8.0 - 8.4	1	0	0	0
7.5 - 7.9	3	0	0	1
7.0 - 7.4	7	1	1	3
6.5 - 6.9	14	1	3	5
6.0 - 6.4	17	3	5	8
5.5 - 5.9	17	2	4	9
5.0 - 5.4	13	4	6	11
4.5 - 4.9	8	3	5	9
Percentage of Pupils				
5.5 or above	59	12	22	44
6.0 or above	42	12	21	40
6.5 or above	25	8	16	36
7.0 or above	11	9	9	36
The correlation between Mental Age and Reading Grade				.34

The data indicates that a larger proportion of the pupils in this group than in the three preceding groups, fell below the reading grades of 1.50 and 1.75, and also that some pupils in all mental-age categories except the two highest fell below a reading grade of 1.50. Of those having a mental age of 7.0 or higher, 36 per cent fell below the reading grade of 1.95. The generally unsatisfactory character of

the instruction makes it difficult to assume a mental-age level at which success would be reasonably assured but a conservative estimate would be a mental age of somewhere between 6.5 and 7.0.

Gates' Conclusions

1. General statements that any given mental age should be achieved by a pupil before he begins to read are misleading. The question must first be asked: How and what is the pupil to begin to read?
2. The foregoing conclusion should not be interpreted to imply that mental age is of no significance in learning to read. The most significant finding is that the correlations between mental age and reading achievement were highest in classes in which the best instruction was done and the lowest in those in which the poorest instruction was provided. The size of the correlations appears to vary directly with the effectiveness of the provision for individual differences.
3. The study shows that the determination of optimum mental age and other factors in reading readiness is not the simple process that some educators would imply. Each teacher must determine exactly what mental age, special aptitudes and what background of previous experiences the children must have to achieve success in her particular program.

SUMMARY

Gates' presentation of the data for four groups of children who were taught to read by appreciably different methods and materials has shown that the mental age required for reasonable success in beginning reading varied with the quality of the school program. Factors in the

program which influenced reading achievement were: the availability of suitable materials, the extent to which the instruction was individualized, the professional skill of the teacher and the size of the class in which the children were enrolled.

A decision as to the optimal time to begin formal instruction in reading must take into account the type of school program in which such instruction will be given.

It is significant in the evaluation of this study to remember that it was conducted over twenty years ago and consequently, the reading needs and requirements of children, as well as their environment, have undergone important changes in the intervening years. Reading materials prepared as a result of an expanding knowledge of the reading process, are much more readily available today. Enriching experiences provided by films, radio, television, recordings and travel which clarify the concepts necessary to effective reading, are a part of the heritage of a major proportion of our child population.

There does not seem to be any evidence to support a supposition that Gates' basic conclusions regarding the importance of materials and methods to success in reading, are not valid today. However, experiments should be conducted to discover the type of materials and methods which would be more suitable for a modern instructional program.

CHAPTER VI

THE EFFECT OF EARLY FORMAL READING INSTRUCTION

ON READING READINESS AND ACHIEVEMENT

The teaching of reading begins in Scotland when the child enters school at the age of five plus. This practice is defended by many Scottish educators. Inglis (1949) says:

The general approval given by American educators to the practice of commencing reading at an average age of six and a half years suggests that considerations that do not weigh so heavily in Scotland are important in American educational thought. . . . Morphett and Washburne advocate a mental age of six and one half years as a minimum for probable success in the early stages of reading. But the fact is that many Scottish children have already made considerable progress in reading by that age. The explanation of the discrepancy, or at least a major part of it, is to be found in the different requirements of the two countries. The Scottish systems do not require a large range of sight words before reading commences, as the words are simple in structure and the range of ideas is limited, in the early stages. No useful generalization can be made regarding the degree of mental maturity required for commencing reading unless the nature of the reading task is defined. Morphett and Washburne are doubtless correct in asserting that a minimum age of six and a half years is required for adequate progress in reading but the content of their materials and the standard of achievement set are not universal and inevitable. An earlier age of commencement may well be appropriate for a simpler task. (1949, p. 10)

The Scottish view is that reading readiness is a trainable capacity. Taylor (1950) sought to discover the effect of formal training on reading readiness. The thesis was that as a five-year-old child learns to read, he develops the interests and skills which are supposed to make up reading readiness and that 'reading readiness is largely reading achievement in the early stages'.

A group of 114 Scottish children was tested at the beginning of their second year at school; their age was 6 plus. Their scores on a readiness test were compared with the American norms for that test. The

American norms were for children also aged six plus but who were just entering school. It was presumed that if the Scottish scores were higher than the American ones, this could be attributed to the effect of a year's schooling.

The Metropolitan Readiness Tests for Kindergarten and Grade I, standardized for American children by Hildreth and Griffiths was administered to the Scottish children. The mean I.Q. of the group was 100.59 and the standard deviation was 13.65.

TABLE XX

COMPARISON OF THE SCORES OF SCOTTISH AND AMERICAN CHILDREN AGED SIX PLUS ON THE METROPOLITAN READINESS TEST (Taylor)

Score	Frequency	
	American	Scottish
120 - 129	15	—
110 - 119	166	12
100 - 109	756	24
90 - 99	1402	38
80 - 89	2031	14
70 - 79	1871	13
60 - 69	1679	2
50 - 59	1156	4
40 - 49	743	3
30 - 39	335	2
20 - 29	152	—
10 - 19	92	2
0 - 9	51	—
N	10,449	114
Mean Score	73.67	90.0
Standard Deviation	26.82	20.3
S.E. Of the Mean	.208	1.90

The mean score of the Scottish group exceeds that of the American group by 16.33 points of the raw score. This difference between the means was tested for significance. The obtained "t" value of 8.55 was highly significant.

The Scottish raw scores were converted into percentile ranks and compared with the American scores given in the Manual of Directions of the Metropolitan Readiness Tests. The results are shown graphically in Figure 3.

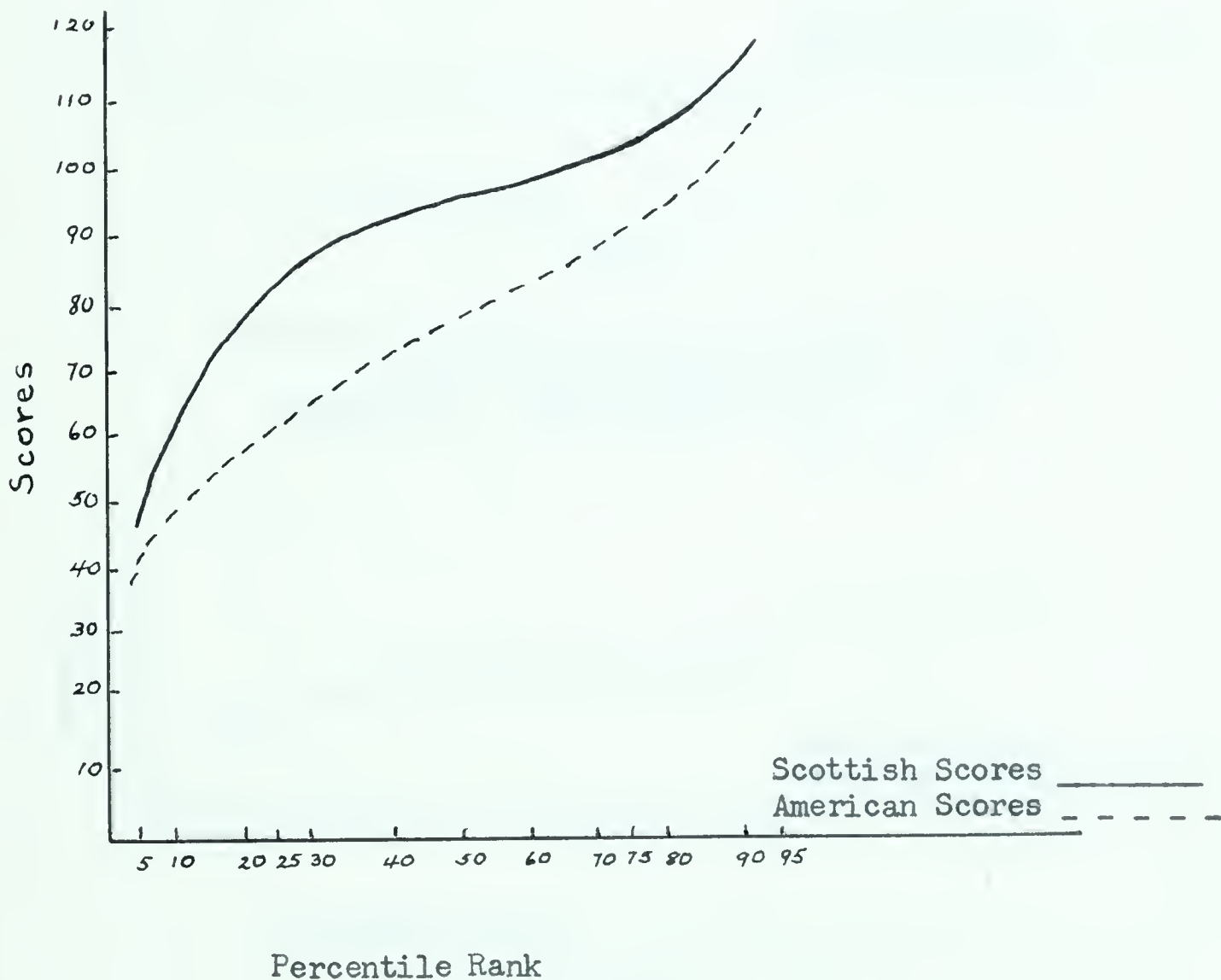


FIGURE 3

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
METROPOLITAN READINESS TEST
TOTAL SCORE (Taylor, 1950)
(p. 77)

The Scottish group showed a marked superiority over the American group in the comparison of the percentile ranks of total scores.

A comparison of the percentile ranks of the Scottish and American scores was made for each of the sub-tests. The results are shown graphically in Figures 4 to 9 inclusive.

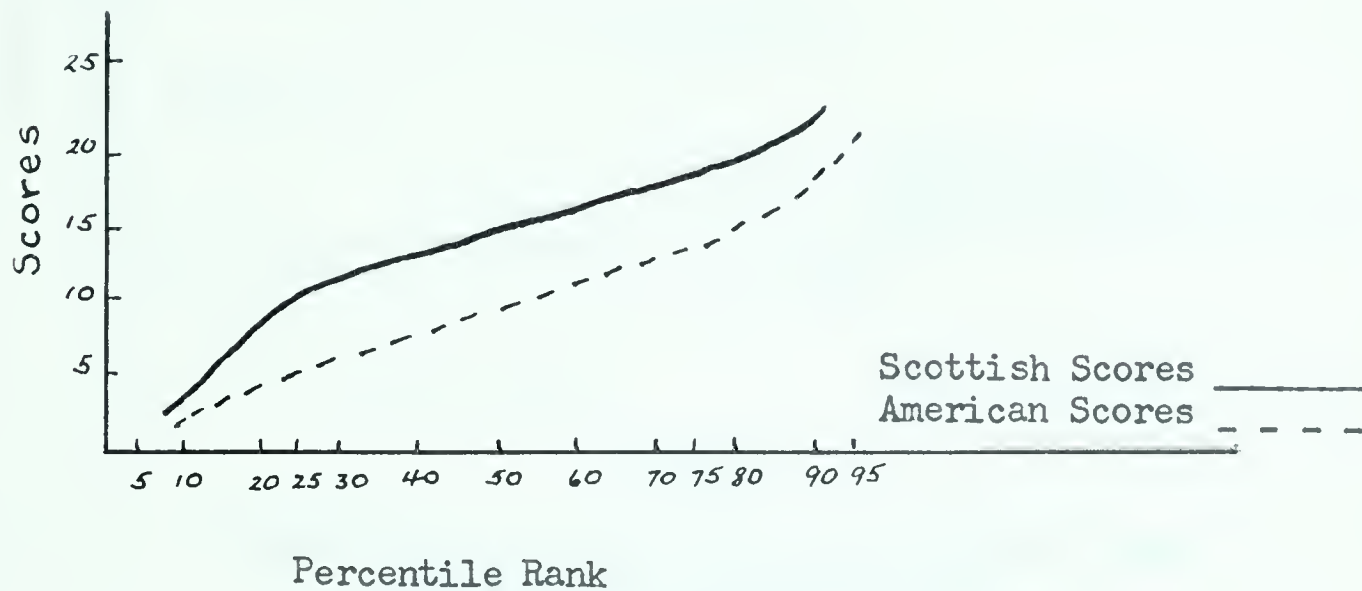


FIGURE 4

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
METROPOLITAN READINESS TEST
PERCEPTION - SIMILARITIES (Taylor, 1950)
(p. 75)

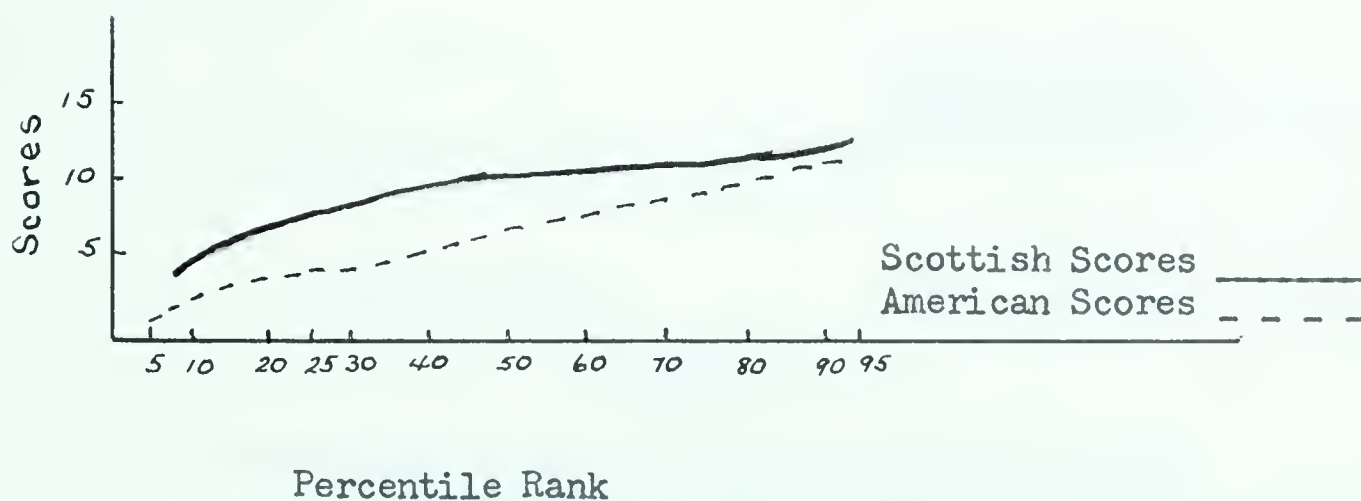


FIGURE 5

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
METROPOLITAN READINESS TEST
PERCEPTION - COPYING (Taylor, 1950)
(p. 75)

In the sub-tests dealing with perception shown in Figures 4 and 5, the Scottish group made somewhat higher scores than the American group.

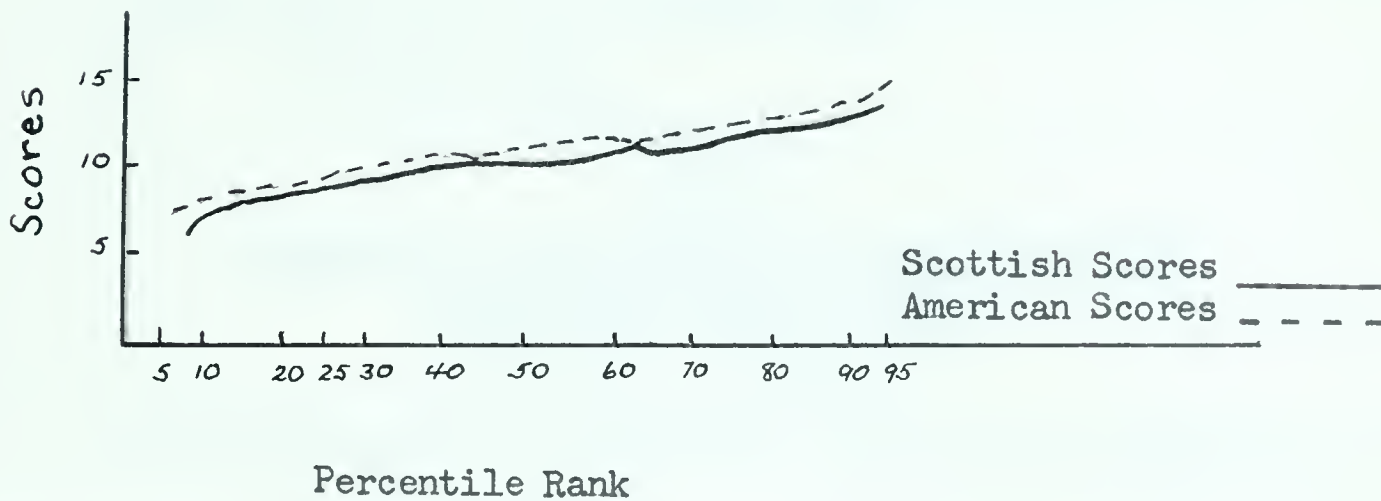


FIGURE 6

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
METROPOLITAN READINESS TEST
VOCABULARY (Taylor, 1950)
(p. 76)

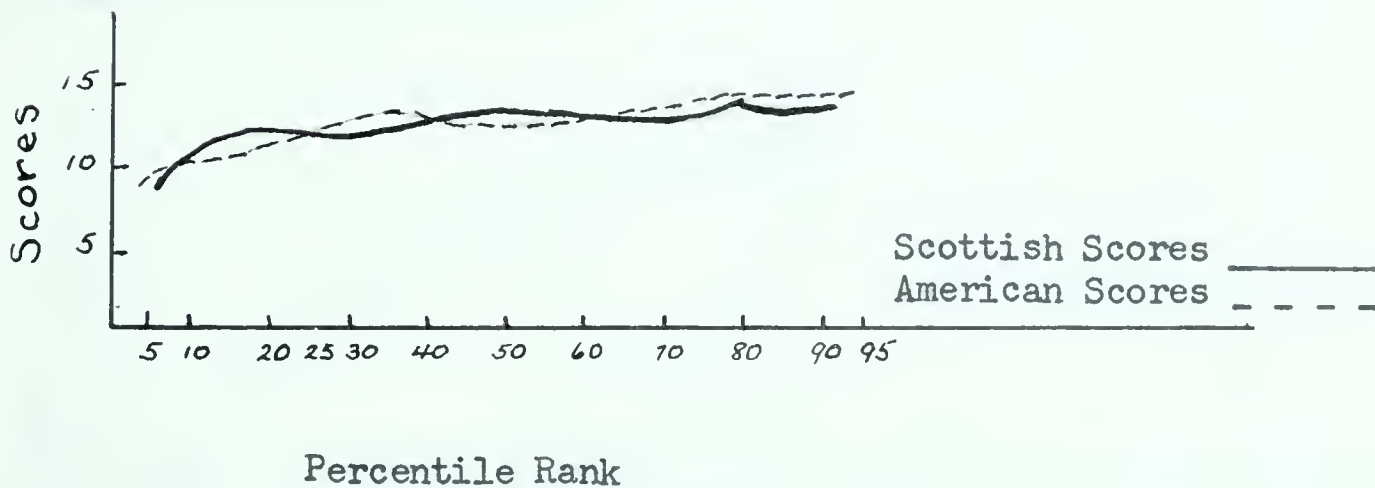


FIGURE 7

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
METROPOLITAN READINESS TEST
SENTENCES (Taylor, 1950)
(p. 76)

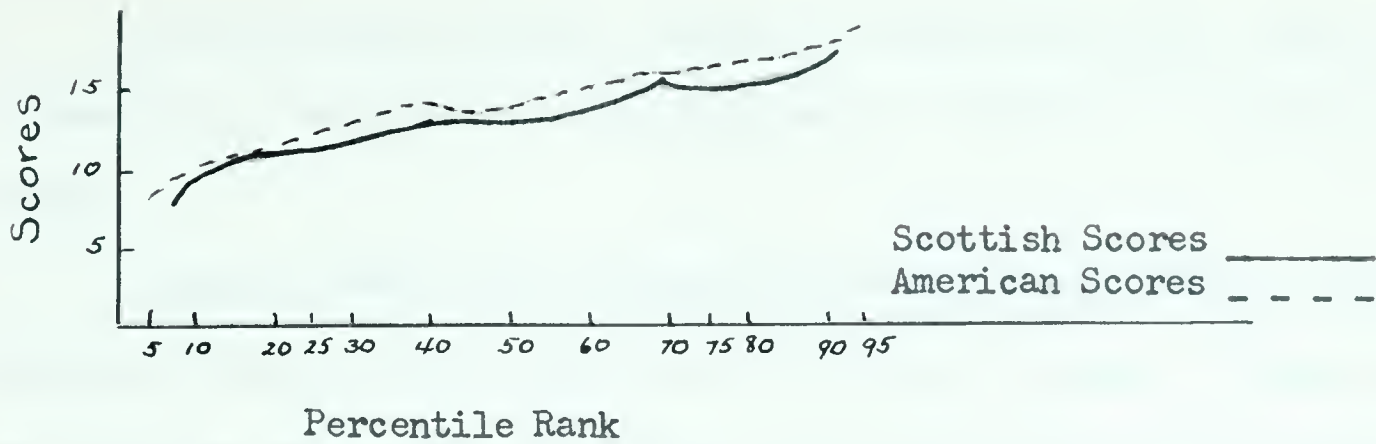


FIGURE 8

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
 METROPOLITAN READINESS TEST
INFORMATION (Taylor, 1950)
 (p. 77)

In the sub-tests of vocabulary, sentences and information graphed in Figures 6, 7 and 8, the Scottish results are very similar to the American ones. The slight superiority of the American scores is rather unexpected because the wider background of language and experience provided for the Scottish children by a year in school, might have been reflected in the test results.

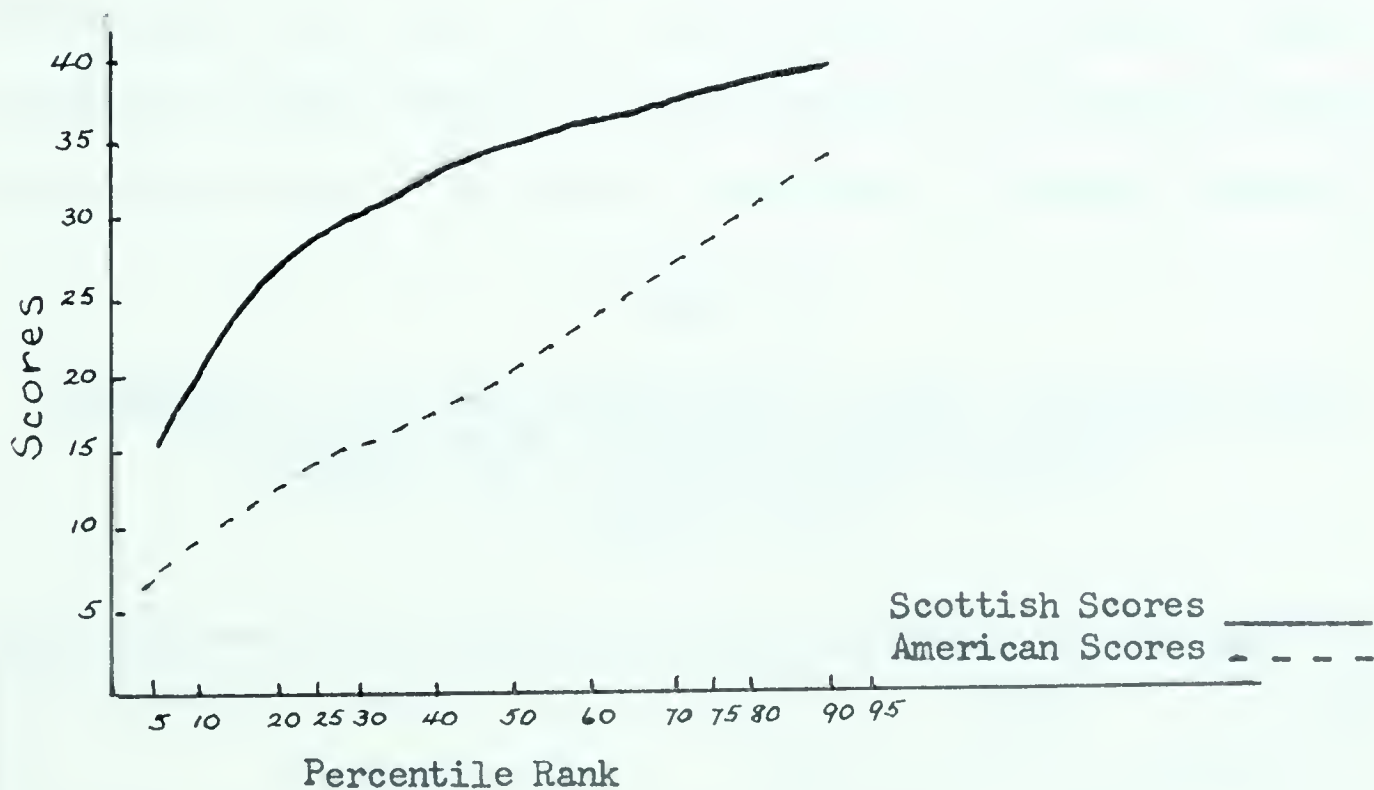


FIGURE 9

COMPARISON OF THE SCOTTISH AND AMERICAN SCORES
 METROPOLITAN READINESS TEST
NUMBER (Taylor, 1950)
 (p. 76)

The sub-test on Number, Figure 9, showed the widest spread of scores, with the Scottish children greatly surpassing the American children.

Taylor (1950) gave the Metropolitan Achievement Tests, Primary I Battery, Form A, to the same group of Scottish Children. Their scores on this test were compared with the norms for American children who also had been at school a year but who were one year older because they had entered school at six years of age. The object of the comparison was to find out whether the superiority in reading readiness of the Scottish group would carry over into actual reading achievement. If the scores on this test showed favorable comparison with the American norms, it might be assumed that reading ability depends on training rather than maturation.

The test is standardized so that the average American child of 6 years, 3 months would have a reading age of 6 years, 3 months. Each chronological age would have a corresponding reading age. Taylor (1950) compared the mean reading age of the Scottish children with the mean chronological age of the group. The results are shown in Table XXI.

TABLE XXI

COMPARISON OF THE MEAN CHRONOLOGICAL AGE WITH THE MEAN READING AGE OBTAINED ON THE METROPOLITAN TESTS, PRIMARY I BATTERY, FORM A, SCOTTISH GROUP (Taylor) (1950, p. 78)

	Mean	S.D.
Chronological Age	6 years, 3 months	3.066
Reading Age (American Norms)	7 years, 5 months	8.08
"t" 17.22		

The difference between the means was highly significant. Therefore, the average Scottish child of 6 years and 3 months who has a reading age of 7 years and 5 months is roughly a year ahead of the American child of the same chronological age. Taylor's conclusions were:

1. From the results of the Readiness Test, it was concluded that the higher scores obtained by the Scottish group were due to the earlier age of entry and that reading readiness can be affected by training and is not dependent solely on maturation.
2. Since the Scottish children, although a year younger in chronological age, showed a full year's progress in reading after a year's schooling, it was concluded that success in reading depends at least as much on training as on maturation.

In evaluating the study, the first question which arises concerns the validity of results of a Readiness Test administered after the children have received a year's schooling and have actually begun to read. Such children would have a distinct advantage over children just entering school in the purely mechanical aspects of performing the test. Gates, Bond and Russell (1939) found that it was more difficult to test children shortly after they enter school than later in the year. "It is indeed very difficult to secure reliable test results from children at the time of entering school." During a year in school children become familiar with school materials and develop initial skills in the conventions of reading. They are better adjusted to the school situation and to group activities. The ability in noting similarities and

in copying figures is a result of experience as well as an indication of mental maturity.

An examination of the results of the sub-tests in vocabulary, sentences and information shows very little difference in the scores of the two groups. Since the quality of the child's ability in these language areas is generally accepted as having an effect on the quality of reading as a thoughtful process as compared to the mere recognition of word forms, one could question the assumption that formal instruction in reading had done much to prepare the children for reading comprehension. Vernon (1949) would support this point of view as he found that reading primers had little or no effect upon the development of vocabulary at this early stage.

The wide difference in the scores of the two groups on the number sub-test seems to reflect the emphasis placed on number in Scottish schools. The Scottish Education Department (1950) suggests that the time allotment for the study of number in the Infant School should be from three to three and a half hours per week. Although it is suggested also that a preliminary informal training period in arithmetic precede formal instruction it appears that, (Scottish Education Department, 1955):

There is a good deal of evidence that throughout the country, formal training is, as a rule, begun too soon. . . . Various reasons have been suggested for the present tendency to proceed prematurely to formal instruction. One of these is that supplies of suitable apparatus for the informal approach are inadequate. Another is the fear that, if informal number activities are to occupy a relatively large part of the normal two years of infant schooling, there will not be sufficient time to complete the programme of work in arithmetic. (1955, p. 2)

It also appears that, even the teachers of the Reception Classes who are convinced that an informal number period is imperative, fear that their professional skill will be impugned if their pupils go up to the next group without being able to put something down on paper.

Forty of the one hundred, twenty-four possible scores on this Readiness Test are allotted to the number sub-test. This gives it a scoring value of twice as much as any of the other sub-tests, implying an importance out of all proportion to its predictive value as a reading readiness test. Harrison (1936), in discussing various reading readiness tests and their sub-tests, suggested that the number sub-test of the Metropolitan Readiness Tests had no bearing on reading readiness. Dean (1939) seemed to be of the same opinion and eliminated it from his study and final calculations of the correlation between readiness scores and reading achievement.

Although there is not sufficient information given in Taylor's study about the scores in the Achievement Battery, one might wonder if the emphasis on arithmetic had a similar forcing effect on the results obtained there also.

There is another speculation one must make owing to lack of information. Were the scores on the word recognition sub-tests greater than the scores on the comprehension sub-tests of the Achievement Battery? Gates, Bond and Russell (1939) found that:

Other things being equal, that test will have the greatest predictive value which measures the aspects of reading abilities that will be given the greatest emphasis in teaching. Thus the more a teacher emphasizes reading and sounding letters, the greater predictive value a preliminary test of these abilities will have. (1939, p. 41)

Therefore one might be permitted to conjecture that the superiority in the perception of form shown in the Readiness Test scores carried over into the achievement scores, for this reason.

Another point to consider in the evaluation of the beneficial effects of an early start is whether the apparent superiority continues throughout the entire school course. MacGregor (1931) in an investigation in Fife, found that at the chronological age of eleven, the Scottish children were ahead of the American children in reading by five months. This difference is significant but it might be questioned whether this difference is entirely the result of an early start in reading. In Alberta, where the children do not normally begin reading until the approximate age of six years, similar results are found when applying American norms of standardized achievement tests.

Finally, the children in the Scottish study cannot be said to be representative of the Scottish population; the group is too small and is from a selected area. Also, since there is no comparison between their performance before and after a year's schooling included in the study, it is rather questionable to assume that early entry into formal reading instruction was the only controlling and causal factor in the children's progress.

Few educators who have investigated the effects of maturity and pre-school experiences on readiness and reading achievement would quarrel with Taylor's contention that training is an important feature of beginning reading, but they might not agree that formal reading instruction is the most suitable, single form of training to develop

favorable attitudes and efficiency in reading.

Taylor bases the defence of early formal instruction on the belief that the optimal age of commencement in reading is when the child shows the desire to read. This desire is said to be a function of increasing skill and the interaction of increasing interest which will be manifested if the program is made easy enough through the availability of simple, stimulating materials. She holds the same opinion as that of Inglis (1949) that Scottish reading activities are more suitable to an early beginning than are those used in American schools.

That the Scottish reading requirements, the vocabulary and range of ideas in the content of the Scottish readers present a simpler task to the five-year-old Scottish child, or that they are more interesting than those used to teach American six-year-olds to read, is not confirmed by Vernon (1948). He made studies of the vocabulary of Scottish children entering school and of word counts of the Scottish Infant School Readers and compared them with those used in America.

Word lists and conversations at home and school were recorded for a sample of two hundred Scottish children all aged from $4\frac{1}{2}$ to $5\frac{1}{2}$ years. The total number of different words was 2,948. From these words a classified list of the 491 most common words used by the children was compiled.

Seven different reading series and a total of seventeen books which were in use in Scottish Infant Schools were included in the investigation of the word counts of the Scottish Readers. The total number of occurrences of each word in a series was tabulated. A total

frequency for each word was calculated by multiplying the frequency of a word in a series by the number of series in which it appeared. For example, the word about occurred once in Series A, once in Series B, three times in Series D and six times in Series G but did not appear in Series C, E or F. Thus, about had a Total Frequency Index of $(1 + 1 + 3 + 6) \times 4 = 44$. The word am occurred a total of 94 times in 6 series and therefore had a Total Frequency Index of 564. To be considered to be a common word in the Scottish Readers, a word had to have a Total Frequency Index of 20 or over. Balloon with a Total Frequency of 3, grandmother with a Total Frequency of 5 or winter with a Total Frequency of 12 had low Total Frequency indices.

Vernon (1948) concluded that the main defects of the books commonly used for teaching reading in the Infant School were:

a. There were gross variations between readers in total vocabulary employed and the numbers of repetitions of words, in the range of ideas or content, and in the use of phonics.

b. The first book to which the children are introduced should be, but seldom was, based mainly on the children's own speech vocabulary, though less familiar words, especially those common in adult speech and reading matter, should be introduced gradually in later years.

c. The content of the readers was often remote from the interests and experiences of the children, particularly of urban children. Phonic primers were the worst offenders and often presented pages of gibberish which would discourage rather than stimulate, the average child's desire to read. (1948, p. 124)

The following excerpt from The Radiant Way Readers, First Step (1958) which is used in Scottish Infant Schools would seem to confirm Vernon's criticism of the quality of the content of phonic primers.

1. Come, Mother, come.

2. Pat has a cod.

3. Ann ran for Mother.
4. See, Mother,
Pat has a cod.
5. Bring the pot, Ann,
for the cod.
6. Thank you, Ann,
for the pot.
7. Bring the cod, Pat,
to the pot.
8. Thank you, Pat,
for the cod.

(1958, p. 13)

A comparison of all the words in the Scottish readers with those of the American reading vocabulary was made by Vernon (1948). Words were given the following values:

3 points if they occurred in the first 150 words of Gates' Primary Reading Vocabulary.

2 points if they occurred in the 151 - 500 words of Gates' Primary Reading Vocabulary.

1 point if they occurred in the 501 - 1,000 words of Gates' primary Reading Vocabulary.

1 point if they occurred in Dolch's "Basis Sight Vocabulary".

1 point if they occurred in Stone's "Most Important One Hundred and Fifty Words for Beginning Reading".

1 point if they occurred in Row-Petersen's Alice and Jerry Series of Primers.

1 point if they occurred in Gates' New Macmillan Series of Primers. (1948, p. 126)

Words which were regarded as suitable for use in American readers had indices (AR) up to 7, while those which would not be included in American readers had indices of 0 or 1. For example, will had a Total Frequency of 2,876 and an AR of 6, while cot had a Total Frequency of

100 and an AR of 0.

The disagreement between the Scottish and American readers was very marked as 67 per cent of all words and from 39 to 59 per cent of all words in each series, would be regarded as unsuitable in America as judged by the AR indices. However, when the primers were considered separately, the percentages dropped to between 20 and 30 per cent in three series and as low as 8 per cent in one series.

Comparison of the American and Scottish speech vocabularies showed that they are so much alike as to suggest that the children's speech in the two countries is much more uniform than are their readers. The following words from American lists have a 7, 6 or 5 frequency on the American scale, but do not appear in any of the Scottish readers. Yet 31 of the 34 occur in the Scottish speech vocabulary, and half of them have high enough frequencies to be included in the classified list of the 491 most common words in the Scottish children's speech.

airplane	city	ice-cream	river
always	coat	(ice)	snow
another	cold	laugh (ed)	something
around	draw	many	store
because	flower	only	those
both	geese	open	turkey
chair	grandfather	paint (ed)	twelve
Christmas	ground	people	use
	hello	picture	wagon
	(hullo)		

Of the 491 most common words in the Scottish children's speech, 104 are not found in any of the Scottish readers and nearly half of them are absent from the words used 20 or more times in the readers. The missing words were:

always	doesn't	nothing	piece	somebody
another	engine	only	pine	something
auntie	field	open	place	sometimes
awful	finger	outside	porridge	stocking
because	flower	own	potatoes	teacher
can't	kilt	paint	pudding	tea-pot
chair	lady	pencil	pussy	teddy-bear
clothes	lassie	penny	sailor	trousers
coat	making	people	sleeping	wheel
cold	messages	pictures	snow	writing

Dr. Vernon says, (1948), "It can hardly be claimed that, with modern methods of teaching, most of these words are too difficult for first-year readers." (1948, p. 133)

Vernon's classification of the 226 nouns most common in the Scottish readers and the 227 nouns most common in the Scottish children's speech into subject-matter categories, shows that the readers concentrate to a degree which is most unsuitable for urban children, on country themes and on animals. The children's conversations are devoted to household objects, food, clothing, personal possessions, parts of the body and to school and home themes, that is, the things in their immediate environment.

These findings by Vernon (1948), would suggest that some doubt might be cast on the assertion that five-year-old Scottish children are introduced to a more simple vocabulary and thus, are faced with an easier reading task than that experienced by American children. Words are not more easily understood and remembered merely because they are short or phonetic. Rich associations with varied and interesting words and ideas, for which these symbols stand, are more apt to insure learning and retention.

Examination of comparable stories in Scottish and American reading

series suggests that it is questionable that there is as much difference in content in the reading materials of the two countries as Taylor (1950) and Inglis (1949) have claimed. The following stories are found in two beginning readers. One is used in Scottish Infant schools; the other is used as a basic reader in American and Canadian grade one classes. The stories are of approximately the same level of difficulty. Seventy-four words in the Scottish series and seventy-eight words in the American series have been introduced as sight words before the stories quoted are to be read. The common theme of play is one which Vernon (1948), in his study of Scottish children's speech vocabularies, found to be of interest to children.

The first story is taken from The Happy Venture Readers, Book One (1945) which is one of the reading series used in Scottish Infant schools. The new words introduced in the story are: his, bat, throw, hit, hits, three and throws.

Page 1. Jack will get his ball,
 "I am to play bat and ball
 with Dick," said Jack.
 Dick will get his big bat.
 Dick and Jack run to
 the big tree to play.
 Dick has the bat.
 Jack has the ball.
 "I will throw the ball,"
 said Jack.

Page 2. "I will hit it," said Dick.
 Nip will run to get the ball.
 He will bring it to Jack.
 Jack said,
 "I will throw the ball.
 You can hit it."
 Dick did not hit the ball
 with his bat.
 The ball hit the tree.

Page 3. Dick, Jack and Dora play
 with a bat and a ball.
 Dick hits the ball and runs.
 Dick has one run.
 Dora throws the ball to Jack.
 Dick hits the ball and runs.
 "Two runs for me," said Dick.
 Dora throws the ball to Jack.
 Dick hits the ball and runs.
 "Three runs for me," said Dick.

(1945, pp. 16, 17, 18)

The second story is from the Curriculum Foundation Series, Book 1 Level One (1944) which is one of the authorized series of readers used in the primary grades in America and Canada. The new words introduced in this story are do and no. Each new word also appears in its capitalized form.

Do What I Do

Page 1. "See me jump, said Dick.
Oh, my! This is fun.
Come and jump.
Come and do what I do.
Look, look.
Who can do what I do?
Who can jump?"

Page 2. "Do this," said Father.
"Who can do what I do?"

"I can," said Mother.
"I can," said Dick.
"I can," said Jane and Sally.

"No, no, Sally," said Father.
"You cannot do this.
You are too little."

Page 3. "I can jump," said Jane.
"I can jump," said Mother.
"I can jump," said Father.
"See me jump, said Sally.
See me jump and play."

"No Sally, no," said Dick.
"You cannot play.
You are too little.
You are a baby."

Page 4. "Who can do this?" said Sally.
"Who can get in here?"

Mother said, "Oh, my!
We cannot do it."

"No, no," said Sally.
"You and Father are too big.
Dick and Jane are too big.
Sally is not too big.
Sally can do it."

(1944, pp. 41 - 44)

The range of ideas in these stories is very similar and within the understanding and experience of the children in the respective countries. The plots, though mild, both contain childlike action, continuity, humor and a conclusion which would be satisfying to children. The chief difference between the two selections lies in the extent to which the illustrations which accompany the verbal text, aid the interpretation and the comprehension of the story episodes. The

pictures are somewhat more detailed in the American book and perhaps give the children more definite clues to anticipate the outcome of the action. In this aspect, it might be considered slightly easier to read than the selection from the Scottish reader. Considering the extent of the vocabulary and the range of ideas, of which these two selections are representative samples, it seems reasonable to assume that the Scottish reading task is not necessarily easier for all five-year-old children than that which faces the American children at six years.

It cannot be denied that the results of the tests given by Taylor (1950) appear to substantiate the statement that early formal instruction in reading yields higher statistical achievement than maturation. Many other experiments have demonstrated that very young children can be taught to read but the evidence also points out that it requires an extreme amount of time and effort which might be expended to better advantage. As Gates and Bond (1937) said:

We believe that investigations should determine the time at which reading ability will be of more general, social and educational value than other activities which would be pursued if reading were not taught. (1937, p. 685)

The scores of the sub-tests of vocabulary, sentences and information obtained by the Scottish children in the study by Taylor (1950) would seem to suggest that these "other activities" might have included those which would have developed a background of experience and linguistic skills especially for the children below the average mental age.

SUMMARY

Although the study appears to suggest that the five-year-old Scottish children showed superior performance in reading readiness and

achievement as a result of a year of formal instruction when compared with American norms, there can be some doubt that the results are entirely conclusive. The sample of children is too small and too selected to be representative of the Scottish population. There is no comparison made between the readiness status of the children before and after the year of formal instruction. The test is actually a test of readiness for learning rather than reading and is so constructed that it tends to favor the children who have had experience with number. Many of the important variables were not controlled or, apparently, even considered in the study. The professional competencies of the teachers, the amount and use of supplementary individualized materials, the time spent on reading activities and the size of the classes could all have had as great an influence on the test results as that of formal training. However, considering what is known about child development and individual differences, the fact that some of these children may have been quite ready to undertake formal reading instruction at the age of five years, cannot be ignored.

The claim that Scottish children make superior progress because their reading materials and requirements present fewer difficulties than those used in America, to the children of the respective countries, is not substantiated by the investigations by Vernon which are included in this study. There have been subsequent studies of this contention which are unpublished as yet, but it is believed that their findings do not substantially alter the conclusions of this study.

CHAPTER VII

CONCLUSIONS AND PROBLEMS EMERGING FROM THE EVIDENCE RELATING TO THEORY AND PRACTICE GOVERNING SCHOOL ENTRANCE

Examination of the literature which is available on the question of school entrance policies and readiness for learning reveals some general conclusions:

1. A child's readiness to enter the first grade and thus to begin formal instruction is the product of three main factors and their interaction with each other. These factors are his total pattern of maturity, his environmental influences and the type of school program to which he will be introduced upon entry into school. The many differences in mental age, physical vigor and strength, visual and auditory perception, emotional stability, social development, pre-school experience and training and the quality of the school programs defy measures intended to determine an age at which all children should begin formal instruction.
2. Tradition and local conditions, rather than research, have combined to decide the admission ages in the various countries reviewed by this study. Differences in entrance age policies are also reflected in differences in the programs which the children encounter upon entry into school. Generally, the lower the entrance age, the more informal is the program to meet the developmental needs of the children.
3. While research has had relatively little effect on the policies governing age of entrance to school, it has affected the philosophies

concerned with beginning reading and other formal instruction. In all countries, the approximate mental age of six years seems to be generally accepted as the time at which the interests and skills requisite for success in formal learning tend to emerge. This has resulted in the previously mentioned modification of the programs for children entering school at earlier ages.

These conclusions do not clarify the problem of setting an optimal age of entry into school. The most important purpose of establishing a definite age of entrance should be to do what is best for the children considering their needs and the expectations of the community and the schools regarding their educational progress. To do this adequately, the purpose of the school must be defined. Is the school conceived as an institution which is designed to expose children to a selection of learning tasks conveniently marked off into grades or levels of normal expectancy? Or, is its function to provide the developmental opportunities beyond those of the home and the immediate neighborhood for which it is uniquely qualified?

If the school is thought to be in the first category, these findings from the evidence are pertinent to the problem of setting an age of entrance into school:

1. Mental age has a positive correlation with success in learning to read.
2. Children with a high mental age and whose physical, social and emotional development has kept pace with their intellectual development will probably make satisfactory progress even though they are admitted

several months earlier than the usual minimum age. Careful screening processes will be necessary to select these younger and brighter entrants.

3. The intellectual progress of bright children admitted early is apt to diminish in subsequent years if serious limitations in other areas of their development appear.

4. Children who are to attend a school system which adheres to rigid requirements for achievement and skill development which begin early in the first grade, will need to be older at the time of entrance to succeed with such a program than children who will enter an informal program.

5. Children of average ability will save little time by being admitted to school earlier than is customary.

6. Slow learning children will require special consideration in the grade one program.

From this summary of generalizations which relate to the concept that the school should put the children through a series of progressively more difficult educational hurdles, there arises these administrative and instructional problems which must be considered to insure success with the school program:

1. The problem of selecting and administering adequate screening processes which will select from the many applicants for early admission, those who will profit from instruction.

2. The problem of implementing a public relations program which will help the parents to understand and accept the purpose of the screening

processes and why some children are rejected.

3. The problem of setting an entrance age for the average and slow learners which will assure a reasonable measure of success with the traditional program of instruction.

4. The problem of selecting adequate methods and materials of instruction which will prevent the retention of the slow learners of any admittance age which would make a program devoted to achievement administratively unwieldy.

5. The problem of organizing instructional procedures for those children who are capable of rapid advancement through the school tasks.

If the school's function is to establish a learning environment which will provide for the development of essential skills commensurate with the children's needs and which cannot adequately be offered within the home, the following experimental evidence has direct bearing upon the problem of setting an entrance age:

1. Every child has a need for companionship and experiences which the home, in these days of small families, apartment dwelling and working mothers, may not be able to provide.

2. Children who have had kindergarten experience or special school readiness activities tend to be more successful in meeting the tasks which they encounter upon admission to the first grade and formal instruction.

3. Individual differences in developmental status make differentiated instruction imperative.

4. All children benefit from a period of orientation which makes the

transition from home or kindergarten to school a natural and easy step forward in their development.

5. Readiness for learning, although a function of maturity, can be nurtured. Some children who show little promise at the time of entrance, often develop rapidly when exposed to an appropriate school curriculum.

The problems posed by these pertinent conclusions are:

1. The problem of fixing an entry age which is realistically related to the benefits which accrue from school attendance.
2. The problem of selecting tests and other devices which will measure the developmental readiness of the children so that a program may be instituted which will allow each child to achieve the maximum benefit from a school environment.
3. The problem of organizing a school program which will be suited to the developmental needs of the children.
4. The problem of inaugurating a channel of communication between the school and the home to inform the parents of the reasons for a differentiated program.

Although there are divergent opinions regarding the responsibilities of the school as a cultural instrument of our society, these problems of relating the child to the school are common to both views:

1. The need to set a minimum age of entrance to school.
2. The selection of an adequate testing program either to select the candidates for early admission, or to classify the children into groups to receive differentiated instruction.
3. The organization of the school program which will allow for the

re-grouping of children and a flexible movement from one group to another as their progress indicates.

4. The selection of methods and materials of instruction and of teachers who are trained to know the needs and interests of young children.

5. The organization of a satisfactory home-school communication program.

SUMMARY

The evidence appears to suggest that there is little gained, either academically or financially, from a school program which stresses rigid standards of achievement in the early grades and therefore rigid requirements for admission to school. Children who are not given the opportunity to make the most of their potentialities whether by being excluded from the advantages offered by the school environment, or because they are not given the type of program suited to their abilities, constitute a loss to society.

The consequent need for expensive remedial programs, the number of early drop-outs from school and the mediocre performance of the under-achievers result in human and economic waste. The expense involved in adapting the schools to their needs in the early years of school, is usually balanced by the cost, tangible or intangible, of forcing all children into the same educational mould.

CHAPTER VIII

RECOMMENDATIONS

1. The evidence appears to suggest that the early years of a child's life have an important influence upon his later achievement, that young children benefit from organized learning experiences beyond those provided by the home and that these experiences are best provided within the framework of the regular school system. These early years of childhood build the healthy personality and develop the feelings of self-worth and adequacy which, in turn, influence every area of activity in adult life. The home is the first important developmental factor but, since the child cannot remain in the circle of his home, he needs experiences which cannot be provided by his family irrespective of its socio-economic status. Social-emotional weaning from the home, social adjustment to peer groups, security in outside situations and the extension of intellectual horizons are contributions of the school milieu. Readiness for formal instruction has been found to be the product of many factors of home and pre-school training. The school cannot assume that these have been adequate. Differences in home environments and the dearth of pre-school institutions would seem to suggest that the school should take positive steps to compensate for any deficiencies as early as possible. Studies of child development have revealed that the age of five is one of emotional equilibrium in which adjustment to group situations is most easily effected. The child of this age is better balanced, more decisive, more co-operative

and more robust than he was at four or will be at six. The transition from home to school, the consolidation of social-emotional attitudes and the development of the pre-requisite skills required for formal instruction might well be easier at this time than at traditional entrance ages.

IT IS RECOMMENDED THAT ALL CHILDREN WHO HAVE ATTAINED THE CHRONOLOGICAL AGE OF FIVE YEARS ON OR BEFORE THE FIRST OF SEPTEMBER, BE ADMITTED TO SCHOOL.

2. It has been shown that adjustment to the school society and environment imposes severe strains on children of any age entering school for the first time. It is also the opinion of research workers that it is almost impossible to secure accurate and reliable data from tests administered to pupils before they have become secure in their new surroundings.

IT IS RECOMMENDED THAT AN ORIENTATION PROGRAM OF AT LEAST FOUR WEEKS BE PROVIDED FOR ALL CHILDREN ENTERING SCHOOL FOR THE FIRST TIME. THIS PERIOD WILL ALLOW FOR A GRADUAL TRANSITION FROM HOME TO SCHOOL AND PROVIDE AN OPPORTUNITY FOR THE TEACHER TO OBSERVE THE CHILDREN IN AN INFORMAL SITUATION AND TO ADMINISTER STANDARDIZED TESTS.

3. Readiness for learning appears to be influenced by many factors of maturity, health and environment. It has also been concluded that the total pattern of growth is more closely related to the reliability of predictions of success than any single factor. It would seem that the developmental status of children entering school should be investigated

by all measures which are available.

IT IS RECOMMENDED THAT:

A. TESTS OF INTELLIGENCE, READING READINESS, VISION, HEARING AND EMOTIONAL STABILITY BE ADMINISTERED.

B. ADDITIONAL DATA CONCERNING THE CHILD'S HEALTH, HIS HISTORY OF ILLNESSES AND PATTERNS OF GROWTH BE SECURED THROUGH AN EXAMINATION BY A MEDICAL DOCTOR AND INTERVIEWS WITH THE PARENTS.

C. INFORMAL OBSERVATION BY THE TEACHER BE CARRIED ON DURING THE ORIENTATION PERIOD.

4. Since the data obtained from the standardized tests, medical reports, interviews and teacher appraisal is highly scientific, professional and, in part, subjective in nature, there must be safeguards against the inclusion of invalid information, biased conclusions and over-simplified interpretations.

IT IS RECOMMENDED THAT THE SCORES OF STANDARDIZED TESTS, THE REPORTS FROM THE DOCTOR AND THE INFORMATION OBTAINED FROM THE PARENTS AND TEACHER BE ANALYZED, EVALUATED AND INTERPRETED BY THOSE WHOSE TRAINING QUALIFIES THEM FOR THE TASK.

5. It has been accepted that the capabilities and the potentialities of children entering school are varied and may change radically as they participate in school activities. Evidence from research has shown that it is of doubtful value educationally either to force the child who is not ready into formal reading instruction or to delay its introduc-

tion for the child who has the requisite maturity.

ON THE BASIS OF THE INTERPRETATION OF THE DATA OBTAINED FROM THE TESTING AND OBSERVATION PERIOD, IT IS RECOMMENDED THAT THE CHILDREN BE CLASSIFIED TENTATIVELY AS:

- A. THOSE WHO WILL PROFIT FROM EXTENSIVE READINESS ACTIVITIES;
- B. THOSE WHO WILL PROFIT FROM A LIMITED AMOUNT OF READINESS ACTIVITIES;
- C. THOSE WHO WILL PROFIT FROM IMMEDIATE INTRODUCTION TO ACTUAL READING ACTIVITIES.

6. The evidence from experimental studies would suggest that certain types of class organization provide more favorable learning situations than others. Programs which parallel the individual differences of children, provide for continuous progress from one level of development to the next and make individualized instruction possible have proven to be the most successful.

IT IS RECOMMENDED THAT CLASSES BE ARRANGED TO PROVIDE AN EDUCATIONAL PROGRAM SUITED TO THE DEVELOPMENTAL STATUS AND NEEDS OF THE CHILDREN AND TO PERMIT THE FLEXIBLE RE-GROUPING OF THE CLASSES AS THEIR STATUS CHANGES WITHOUT UNDUE DISRUPTION OF THE ADJUSTMENT AND FEELING OF SECURITY OF THE CHILDREN.

IT IS FURTHER RECOMMENDED THAT THE SIZE OF THE CLASSES IN ALL GRADES SHOULD BE LIMITED AND SHOULD NEVER EXCEED TWENTY-FIVE CHILDREN.

7. TO IMPLEMENT THE ABOVE RECOMMENDATIONS, TWO TYPES OF CLASS ORGANIZATION ARE SUGGESTED.

1. (a) Those children who require extensive readiness activities may be placed in a group designated as "pre-primary", "transition" or an equivalent name.

(b) Those children who require limited readiness activities and those who are ready for immediate introduction to reading may be grouped either homogeneously or heterogeneously.

(c) Adaptations in grouping and in the content of the program will be made to the level of development upon entrance and to the changes which occur in the needs of the children as the school year progresses.

(d) These changes should be made within the class to which the children were assigned originally and should not involve a change of teacher.

2. (a) A primary division or unit may be established which will eliminate or minimize grade lines and expedite movement from one level to another.

(b) The children will remain with the teacher for more than one year.

(c) Children may be grouped either homogeneously or heterogeneously. The program will be adapted to their present needs and emerging capabilities.

8. Evidence suggests that certain developmental tasks are more easily learned if presented when the total organism is in readiness. A primary curriculum which provides for continuous learning and is adjustable to the abilities of the individual learner presents the opportunity to begin reading when he has developed the necessary skills

and allows him to proceed at his own success rate.

IT IS RECOMMENDED THAT A DEVELOPMENTAL APPROACH BE EMPLOYED IN ORGANIZING THE PRIMARY CURRICULUM AND THAT CONSIDERATION BE GIVEN TO THE GROWTH PATTERNS OF CHILDREN AND CONSEQUENTLY TO THE EMERGENCE OF VOCABULARY AND LANGUAGE SKILLS, OF VISUAL AND AUDITORY PERCEPTION, OF THE ABILITY TO PROFIT FROM INSTRUCTION IN PHONETIC ANALYSIS AND THE DEVELOPMENT OF ABSTRACT AND CRITICAL THINKING WHEN PLANNING THE LEARNING TASKS OF THE VARIOUS LEVELS OF ACHIEVEMENT.

9. The importance of activities which nurture readiness and an attitude for learning has been demonstrated by a large number of studies. An informal, yet planned, program appears to give the most satisfactory results. It is also agreed that certain learning tasks are made easier by developing pre-requisite skills and by adapting materials to the interests and abilities of the learner.

IT IS RECOMMENDED THAT:

A. READINESS ACTIVITIES SHOULD BE OF TWO TYPES:

1. THOSE WHICH ARE AN INTEGRAL PART OF THE TOTAL PROGRAM AND WHICH FOSTER GENERAL READINESS FOR LEARNING.
2. THOSE WHICH PROVIDE DIRECT HELP IN SKILLS WHICH ARE DESIGNED TO PREPARE CHILDREN FOR THE TASK OF FORMAL LEARNING.

B. EXPERIMENTAL EVIDENCE SHOULD BE OBTAINED BY ACTION RESEARCH AS TO THE EFFECT OF MODERN LIFE WITH ITS BROADENED HORIZONS THROUGH TELEVISION AND TRAVEL, ON EARLIER CONCEPTS OF READINESS. SIMILARLY, THAT EXPERIMENTS WITH THE USE OF FILMSTRIPS, TELEVISION, OPAQUE PROJECTORS AND

OTHER VISUAL AIDS, BE CONDUCTED TO EVALUATE THEIR CONTRIBUTION TO MORE EFFICIENT EARLY LEARNING.

10. Opinions expressed by psychologists and educators would lead us to assume that the importance of the teacher as a determining factor in the development of a child's personality and mental health is second only to that of the parent. Similarly, the teacher occupies a key position as the combining force which puts educational theory into practice. School programs are evidently only as effective in achieving their purposes as their interpretation by the teachers can make them. First experiences in school are basic to immediate and later adjustments to learning. Teachers of young children need to be specially trained for their role in establishing the kind of physical, emotional and intellectual environment which is conducive to total growth. They should have a full understanding of child development, of pre-school influences and their effect on learning and of the learning tasks which the children will encounter as they pass from one stage of development to another. It is important that they be teachers of primary children rather than teachers of specific and isolated primary grades.

IT IS RECOMMENDED THAT THE FACULTY OF EDUCATION INSTITUTE A PROGRAM OF TEACHER TRAINING WHICH WILL PREPARE ITS GRADUATES TO TEACH ALL STAGES OF THE PRIMARY SCHOOL. THIS TRAINING PROGRAM SHOULD INCLUDE COURSES IN:

- A. CHILD DEVELOPMENT
- B. CHILD PSYCHOLOGY

C. PRIMARY CURRICULUM

D. SUBJECT MATTER METHODS

11. It has been strongly emphasized in all literature reviewed in this study that the child and his educational needs cannot be considered adequately apart from the values and expectations of his home and community. Misunderstanding and cross-purposes result when there is insufficient knowledge and communication among the home, the community and the school. An informed public is rarely biased in its criticisms of school policies. The general acceptance of the importance of the early years of childhood seems to prove that the efforts of educators at all professional levels to make their findings available to parents, community organizations and other groups interested in child welfare have resulted in improved practices in child care and educational opportunities in many countries.

IT IS RECOMMENDED THAT THERE BE A DIRECT AND PLANNED PROGRAM OF PARENT-TEACHER EDUCATION AIMED AT INFORMING THE PUBLIC OF THE OBJECTIVES IN ADMITTING YOUNGER CHILDREN TO THE REGULAR SCHOOL PROGRAM. THE FOLLOWING SUGGESTIONS MIGHT BE CAREFULLY CONSIDERED WHEN INSTITUTING THE PROGRAM:

- a. The policy of admitting all five year old children should not be carried out until parents are made fully aware that all children are not expected to read in their first year of school. Admittance to school must not be considered synonymous with learning to read.
- b. The teachers must be secure in their understanding and acceptance

of the purposes of the policy in order that they may resist pressures from any source to conduct a narrow program of activities in an attempt to have their pupils meet arbitrary standards of achievement.

c. Administrative bulletins, articles in the press, Home and School Association meetings and demonstrations are a few means of acquainting the parents with the program. Study groups with administrators, teachers and parents as participants should be organized. Informal school visits by parents should be encouraged.

SUMMARY

As there are many intermingled and modifying factors involved in readiness for formal instruction, it is clearly impossible to define accurately the age at which all children should enter a traditional grade one program. No matter what entrance age to such a program is set, it may militate against some children either by forcing them beyond their capabilities or by denying them the opportunity to learn. This characteristic individualism makes it expedient and desirable that the present concept of the school curriculum and its stratification be altered.

The importance of early childhood influences on education has been too well demonstrated to be denied. Education is continuous from birth and there is normally no abrupt change at any time. The home is the initial source of acculturation but the school is uniquely endowed with the means to augment and extend the contribution of the family unit. Children in today's complex society, should be allowed to take

advantage of a school environment at the earliest time at which they can profit from the learning experiences it can be expected to offer.

About the age of five years, a child has completed a period of rapid growth in all areas and has reached a plateau of relative stability between the expansiveness of four and the extremes of six. Age five is a year of equilibrium when conforming to controls is an absorbing interest. Separation from home is tolerated with equanimity; friendships with peers and adults are easily established. It would seem that at this age, the adjustment to the larger social unit of the school could be made with a minimum of strain. The six-year-old, because of his stage of organismic and emotional development may face too many conflicting demands on his energies to give complete attention to the grade one instructional program. Many of these tensions could be avoided or reduced by extending the years of school attendance downwards.

The admittance of children younger than the traditional age of six, necessitates a revision of the present school program which has been long overdue. These changes would include modifications in organization and instruction and in the selection and training of teaching personnel. There must be open channels of communication through which the public can interpret correctly the purposes of the school and its educational policies. The consequent financial outlay would be more than merely justified by the advantages which would accrue from the provision of a sound foundation for educational progress.

BIBLIOGRAPHY

BIBLIOGRAPHY

A. BOOKS

Anderson, Irving H. and Walter F. Dearborn. The Psychology of Teaching Reading. New York: Ronald Press Company, 1952.

Arrowsmith, G., et al. Reading - An Educational Approach. London: Evans Brothers, First Edition - 1947, Reprinted - 1951.

Ault, P.H. University of Bristol, Institute of Education, Publication Number 7, Young Children Learning to Read. University of London Press Ltd., 1955.

Betts, E.A. Foundations of Reading Instruction. New York: American Book Company, 1946.

Betts, E.A. Prevention and Correction of Reading Difficulties. Row, Peterson & Co., 1936.

Boyce, E.R. The First Years in School. London: James Nisbet & Co. Ltd., 1953.

Breckenridge, M.E. and E.L. Vincent. Child Development. Philadelphia: W.B. Saunders Co., 1955.

Caswell, H.L. and A.W. Foshay. Education in the Elementary School. New York: American Book Company, 1950.

Cole, Luella. The Improvement of Reading. New York: Farrar and Rinehart, 1938.

Dolch, E.W. Problems in Reading. Champaign, Illinois: Garrard Press, 1948.

Dunklin, Howard T. The Prevention of Failure in First Grade Reading by Means of Adjusted Instruction. Teachers College Contributions to Education, No. 802. New York: Teachers College, Columbia University, 1940.

Durrell, Donald D. Improvement of Basic Reading Abilities. Yonkers: World Book Co., 1940.

Gagg, J.C. and M.E. Gagg. Teaching Children to Read. London: Newnes Educational Publishing Co. Ltd., 1955.

- Gans, Stendler and Almy. Teaching Young Children. New World Education Series. World Book Co., 1952.
- Gardner, DEM. Education Under Eight. London: Fosh and Cross Ltd., 1949.
- Gardner, DEM. Long Term Results of Infant School Methods. London: Methuen and Co. Ltd., 1950.
- Gates, Arthur I. and others. Methods of Determining Reading Readiness. New York: Bureau of Publications, Teachers College, Columbia University, 1939.
- Gates, Arthur I. The Improvement of Reading. New York: Macmillan Co., 1929.
- Gesell, Arnold and Frances L. Ilg. The Child from Five to Ten. New York: Harper and Bros., 1946.
- Harrison, M. Lucile. Reading Readiness. New York: Houghton Mifflin Co., 1936. Second edition - 1939.
- Harris, Albert J. How to Increase Reading Ability. New York: Longmans, Green and Company, Third Edition, 1956.
- Heck, Arch. O. Administration of Pupil Personnel. Boston: Ginn and Co., 1929. Pp. 357 - 360.
- Hildreth, Gertude. Readiness for School Beginners. Yonkers: World Book Co., 1950.
- Hildreth, Gertude. Learning the 3 R's. Minneapolis: Educational Publishers, 1947 (revised).
- Imhoff, Myrtle M. Early Elementary Education. New York: Appleton - Century - Crofts, Inc., 1959.
- Isaacs, Susan. The Children We Teach. London: University of London Press Ltd., 1936.
- Jenkins, G.G., H. Schacter and W.W. Bauer. These Are Your Children. Chicago: Scott, Foresman and Co., 1953.
- Lambert, Hazel M. Early Childhood Education. Boston: Allyn and Bacon, 1960.
- Leavitt, Jerome E. Nursery - Kindergarten Education. New York: McGraw - Hill Book Co., 1958.

- Logan, Lillian M. Teaching the Young Child. Boston: Houghton Mifflin Co., 1960.
- Monroe, Marion. Children Who Cannot Read. Chicago: University of Chicago Press, 1932.
- Monroe, Marion. Growing Into Reading. Chicago: Scott, Foresman and Co., 1951.
- Monroe, Marion and Bertie Backus. Remedial Reading: A Monograph in Character Education. Boston: Houghton Mifflin Co., 1937.
- Moore, Elenora H. Fives At School. New York: G.P. Putnam's Sons, 1959.
- Olson, Willard C. Child Development. Boston: D.C. Heath and Co., 1949.
- Prescott, Daniel A. Emotion and the Educative Process. Washington: American Council on Education, 1938.
- Prescott, Daniel A. The Child in the Educative Process. New York: McGraw - Hill Book Company, Inc., 1957.
- Robinson, Helen M. Why Pupils Fail in Reading. Chicago: University of Chicago Press, 1946.
- Schonell, Fred J. The Psychology and Teaching of Reading. London: Oliver and Boyd, 1945.
- Sheridan, M.D. The Child's Hearing for Speech. London: Methuen and Co. Ltd., 1948.
- Skinner, Charles E. (ed.). Elementary Educational Psychology. New York: Prentice - Hall Incorporated, Second Edition, 1950.
- Stone, Clarence R. Progress in Primary Reading. St. Louis: Webster Publishing Company, 1950.
- Tinker, Miles A. Teaching Elementary Reading. New York: Appleton - Century - Crofts, Inc., 1952.
- Witty, Paul and David Kopel. Reading and the Educative Process. Boston: Ginn and Co., 1939.
- Witty, Paul and David Kopel. Preventing Reading Disability: The Reading Readiness Factor. Educational Administration and Supervision - Volume 22, 1936. Pp. 401-418.
- Yoakam, Gerald A. Basal Reading Instruction. New York: McGraw - Hill Book Company, Inc., 1955.

B. PERIODICALS

- Almy, Millie C. "Children's Experiences Prior to First Grade and Success in Beginning Reading," Contributions to Education Number 954, New York: Bureau of Publications, Teachers College, Columbia University, 1949.
- Ammons, M.P. and John I. Goodlad. "When to Begin - Dimensions of the First Grade Entrance Age Problem," Childhood Education, September, 1955. Pp. 21 - 26.
- Arthur, Grace. "A Quantitative Study of the Results of Grouping First Grade Classes According to Mental Age," Journal of Educational Research, Volume 12, 1925. Pp. 173 - 185.
- Baker, Emily. "Reading Readiness is Still Important," Elementary English, Volume XXXII, January, 1955. Pp. 17 - 23.
- Betts, A.E. "Factors in Readiness for Reading," Educational Administration and Supervision, Volume XXIV, 1943. Pp. 199 - 230.
- Bigelow, Eliz. B. "School Progress of Under-Age Children," Elementary School Journal, Volume XXXV, November, 1934. Pp. 186 - 192.
- Bird, Grace E. "A Successful Experiment in Child Education," Elementary School Journal, Volume XXX, March, 1930. Pp. 539 - 546.
- Boney, C. De Witt. "Shall Beginning Reading Be Delayed," Childhood Education, Volume XXVI, December, 1949. Pp. 168 - 172.
- Boney, C. De Witt and Kate Agnew. "Periods of Awakening or Reading Readiness," Elementary English Review, Volume XIV, May, 1937. Pp. 183 - 187.
- Caswell, H.L. "Non-promotion in the Elementary School," Elementary School Journal, Volume XXXIII, 1933. Pp. 644 - 647.
- Clarke, S.C.T. "Promotion Practices and Policies in Alberta Schools," The Alberta Journal of Educational Research, Volume I, Number 4, December, 1955.
- Cone, H.R. "Brookline Admits Them Early," Nations Schools, March, 1955. Pp. 46 - 47.
- Cowin, Shirley H. "Reading Readiness Through Kindergarten Experience," Elementary School Journal, Volume LII, October, 1951. Pp. 96 - 99.

- Davidson, Helen P. "An Experimental Study of Bright, Average and Dull Children at the Four-Year Mental Level," Genetic Psychology Monographs, Volume 9, Number 4, March-April, 1931. Pp. 119-289.
- Davis, Irene Poole. "The Speech Aspects of Reading Readiness," National Elementary Principal, Volume XVII, Number 7, July, 1938. Pp. 282 - 288.
- Dean, Charles D. "Predicting First Grade Achievement," Elementary School Journal, Volume XXXIX, April, 1938. Pp. 609 - 616.
- Deputy, E.C. "Predicting First-Grade Reading Achievement: A Study in Reading Readiness," Contributions to Education, Number 426, Teachers College, Columbia University, 1930.
- Durrell, Donald D. "Confusions in Learning," Education, Volume LII, February, 1932. Pp. 330 - 333.
- Eames, T.H. "A Frequency Study of Physical Handicaps in Reading Disability and Unselected Groups," Journal of Educational Research, Volume XXIX, 1935. Pp. 211 - 215.
- Fast, Irene. "Kindergarten Training and Grade One Reading," Journal of Education Psychology, Volume XLVIII, 1957. Pp. 52 - 57.
- Gates, Arthur I. "The Necessary Mental Age for Beginning Reading," Elementary School Journal, Volume XXXVII, March, 1937. Pp. 497 - 508.
- Gates, Arthur I. and Guy I. Bond. "Reading Readiness: A Study of Factors Determining Success and Failure in Beginning Reading," Teachers College Record, Volume XXXVII, May, 1936. Pp. 679 - 685.
- Gray, William S. "Reading," Review of Educational Research, Volume 7, December, 1937. Pp. 493 - 507.
- Gray, William S. "Summary of Reading Investigations," Journal of Educational Research, Volume XXXIV, 1946. Pp. 401 - 433. Volume XL, 1947. Pp. 401 - 435.
- Hamalainen, A.E. "Kindergarten - Primary Entrance Age in Relation to Later School Adjustments," Elementary School Journal, Volume LII, March, 1952. Pp. 406 - 441.
- Hilliard, George and Eleanor Tronell. "Informational Background as a Factor in Reading Readiness," Elementary School Journal, Volume XXXVIII, December 1937. Pp. 255 - 263.
- Hobson, James R. "Mental Age as a Workable Criterion for School Admission," Elementary School Journal, Volume XLVIII, 1947-1948.

- Jensen, Milton J. "Reading Deficiency as Related to Cerebral Injury and Neurotic Behavior," Journal of Applied Psychology, Volume XXVII, 1943. Pp. 532 - 536.
- Johnson, William D. "Development of the Chicago Program to Aid Pupils Lacking Reading Readiness," Elementary School Journal, Volume XLII, January, 1942. Pp. 337 - 46.
- Keister, B.V. "Reading Skills Acquired by Five Year Old Children," Elementary School Journal, Volume XLI, April, 1941. Pp. 587 - 596.
- King, Inez B. "Effect of Entrance Age Into Grade I Upon Achievement in Elementary School," Elementary School Journal, Volume LV, February, 1955. Pp. 331 - 336.
- Kottmeyer, William. "Readiness for Reading," Elementary English, Volume XXIV, October, 1947. Pp. 355 - 356.
- McCracken, Glen. "Have We Over-emphasized the Readiness Factor?" Elementary English, Volume XXIX, May, 1952. Pp. 271 - 276.
- Milner, Esther. "A Study of the Relationship Between Reading Readiness in Grade One School Children and Patterns of Parent - Child Interaction," Child Development, Volume XXII, 1951. Pp. 95 - 112.
- Morphett, Mabel V. and C. Washburne. "When Should Children Begin to Read," Elementary School Journal, Volume XXXI, 1931. Pp. 496 - 503.
- National Society for the Study of Education. "Reading in the Elementary School," Forty-eighth Yearbook, Part II, University of Chicago Press, 1949.
- Olson, Willard C. and Byron O. Hughes. "Concepts of Growth - Their Significance to Teachers," Childhood Education, Volume XXI, October, 1944. Pp. 53 - 63.
- Otto, Henry J. "Elementary Education: Organization and Administration," Encyclopedia of Educational Research, Revised Edition. Macmillan Co., 1950. P. 370.
- Otto, Henry J. "Implications for Administration Growing Out of Pupil Failures in the First Grade," Elementary School Journal, Volume XXXIII, September, 1932. Pp. 25 - 32.
- Peterson, Inez B. "The Reading Readiness Program of the Ironwood Public Schools," Elementary School Journal, Volume XXXVII, 1937. PP. 438 - 446.

- Petty, Mary C. "An Experimental Study of Certain Factors Influencing Reading Readiness," Journal of Educational Psychology, Volume XXX, 1939. Pp. 215 - 230.
- Preston, Mary I. "The Reaction of Parents to Reading Failure," Child Development, Volume X, No. 3, September, 1939. Pp. 173 - 179.
- Raguse, Florence. "Qualitative and Quantitative Achievement in First Grade Reading," Teachers College Record, Volume XXXII, February 1931. Pp. 424 - 426.
- Raybold, Emma. "Reading Readiness in Children Entering the First Grade," Third Yearbook of the Psychology and Educational Research Division, School Publication No. 185. Los Angeles, California: Los Angeles City School District, 1929.
- Ring, Ona E. "Effectiveness of a Reading Readiness Program as Shown by Results of Standardized Tests," California Journal of Elementary Education, Volume IX, November, 1940. Pp. 91 - 96.
- Roslow, Sydney. "Reading Readiness and Reading Achievement in the First Grade," Journal of Experimental Education, Volume IX, December, 1940. Pp. 154 - 159.
- Scott, Carrie M. "An Evaluation of Training in Readiness Classes," Elementary School Journal, Volume XLVIII, 1947. Pp. 26 - 32.
- Smith, C.A. and Myrtle R. Jensen. "Educational, Psychological and Physiological Factors in Reading Readiness," Elementary School Journal, Volume XXXVI, 1935. Pp. 583 - 594, 682 - 691.
- Smith, Nila B. "Readiness for Reading, Part I and II," Elementary English, Volume XXVII, 1950. p. 31 and p. 91.
- Strickland, Ruth C. and Phyllis Plicta. "Age of Entrance into the First Grade," Suggestions with Regard to Persistent Elementary School Problems, Bulletin of the Schools of Education, Indiana University, January, 1949. Pp. 7 - 12.
- Teegarden, Lorene. "Kindergarten and Reading Reversals," Childhood Education, Volume IX, November, 1932. Pp. 82 - 83.
- Thomson, Jennie Lloyd. "Big Gains from Postponed Reading," Journal of Education, Volume CXVII, October, 1934. Pp. 445 - 446.
- UNESCO. "Studies on Compulsory Education," Compulsory Education in New Zealand, 1952.

Waters, Doris. "Pre-Reading Experience," Education, Volume 54, 1934.
Pp. 308 - 312.

Witty, Paul and David Kopel. "Preventing Reading Disability - The Reading Readiness Factor," Educational Administration and Supervision, Volume XXII, 1936. Pp. 401 - 418.

Woods, Elizabeth. "A Study of the Entering Bl Children in Los Angeles City Schools," Journal of Educational Research, Volume XXXI, September, 1937. Pp. 9 - 19.

Yageman, L. "Should All First Grade Children Be Given A Reading Program?" California Journal of Elementary Education, Volume III, 1935. Pp. 158 - 164.

C. EDUCATIONAL STUDIES AND SURVEYS

Campbell, A.E. The Academic Attainment of Late Entrants to the Primary School: A Progress Report. New Zealand Council for Educational Research, Bulletin Number 4, 1940.

Department of Education, Province of Quebec. Study of the Age of Admission to Grade One of the Elementary Course (English Translation). Educational Survey, 1941 - 1942.

Inglis, W.B. The Early Stages of Reading: A Review of Recent Investigations. Studies in Reading, Volume 1, Scottish Council for Research in Education. London: University of London Press Ltd., 1948.

Educational Research Service. Admission Policies For Kindergarten and First Grade. Washington: American Association of School Administrators and Research Division of the National Education Association, April, 1958.

McLaren, Violet. Socio-Economic Status and Reading Ability - A Study in Infant Reading. Studies in Reading, Volume II. Scottish Council for Research in Education. London: University of London Press Ltd., 1950.

Taylor, Christian D. The Effect of Training on Reading Readiness. Studies in Reading, Volume II. Scottish Council for Research in Education. London: University of London Press Ltd., 1950.

Vernon, P.E. A Preliminary Investigation of the Vocabulary of Scottish Children Entering School Studies in Reading, Volume I. Scottish Council for Research in Education. London: University of London Press Ltd., 1948.

Vernon, P.E. Word Counts of the Basic Readers, Volume I. Scottish Council For Research in Education. London: University of London Press Ltd., 1948.

D. CURRICULUM BULLETINS AND READING SERIES

Scottish Education Department. Arithmetic in the Primary School (1956)
Edinburgh: H.M. Stationery Office.

Scottish Education Department. Reading in the Primary School (1956)
Edinburgh: H.M. Stationery Office.

Scottish Education Department. The Primary School in Scotland.
Edinburgh: H.M. Stationery Office, 1946.

Department of Education, New South Wales. Curriculum For Primary Schools. 1957.

Report of the Provincial Education Committee, Province of Natal, 1946.

Natal Education Department. Syllabus for Infant Schools. 1955.

The Radiant Way First Step. Edinburgh, Scotland: W. and R. Chambers, 1933 (Reprint - 1958).

Gray, W.S. Artley, A.S. and M.H. Arbunthnot. Fun With Dick and Jane (Grade 1st). Curriculum Foundation Series. Chicago: Scott, Foresman and Co., 1946 (Revised - 1951).

Schonell, F.J. and I. Sergeant. The Happy Venture Readers (Book I)
London: Oliver and Boyd Ltd.

E. UNPUBLISHED MATERIALS

Bevington, W. "Effect of Age of Entrance into Grade One on Subsequent Achievement." Unpublished Master's Thesis, University of Alberta, 1957.

Olson, M.I. "The Development of Play Schools and Kindergartens and an Analysis of a Sampling of these Institutions in Alberta." Unpublished Master's Thesis, University of Alberta, 1955.

Ritchie, R.C. "The Nongraded Elementary School Program." Unpublished Master's Thesis, University of Alberta, 1960.

F. LETTERS RECEIVED by the ALBERTA ADVISORY COMMITTEE
on EDUCATIONAL RESEARCH

Almy, Millie C. Department of Psychological Foundations and Services, Teachers College, Columbia University. Letter received - 1958.

- Anderson, Robert H. Lecturer on Education, Director of Elementary School, Internship and Apprentice Teaching, Harvard University, Massachusetts. Letter received - 1958.
- Brownell, W.A. Dean of the School of Education, University of California. Letter Received - 1958.
- Eawden, Albert V. Staff Inspector, Education Department, South Australia, Adelaide. Letter received - 1958.
- Beeby, C.E. Director of Education, Wellington, New Zealand. Letter Received - 1958.
- Lindroth, W.A. Director of Education, Transvaal Education Department, Pretoria, Union of South Africa. Letter Received - 1958.
- Mackenzie, D.B. Acting Superintendent of Schools, School District Number 39, Vancouver, Canada. Letter Received - 1958.
- McKenna, Bernard H. Associate Executive Secretary, Metropolitan School Study Council, New York. Letter Received - 1958.
- Naylor, B.O. Ministry of Education, England, Curzon Street, London W.1. Letter Received - 1957.
- Neal, W.D. Superintendent, Research and Curriculum, Education Department, Government of Western Australia, Perth. Letter Received - 1958.
- Parkyn, G.W. Director, New Zealand Council for Educational Research, Wellington, New Zealand. Letter Received - 1958.
- Place, W.T. Secretary, Education Department, Government of Melbourne. Letter Received - 1958.
- Rogers, Don C. Associate Superintendent in Charge of Administration and Research, Chicago Public Schools. Mimeographed Sheet - 1955.
- Rusk, Robert R. Director, Scottish Council for Research in Education, Edinburgh. Letter Received - 1958.
- Smith, F.V. Department of Psychology, University of Durham, Gilesgate, Durham, England. Letter Received - 1958.
- Van Kerkin, E.E. Adjunct - Director of Education for the Orange Free State, Union of South Africa. Letter Received - 1958.

B29787